JUN 8 1944

PAPER TRADE JOURNAL

APRIL 13, 1944

Established 1886

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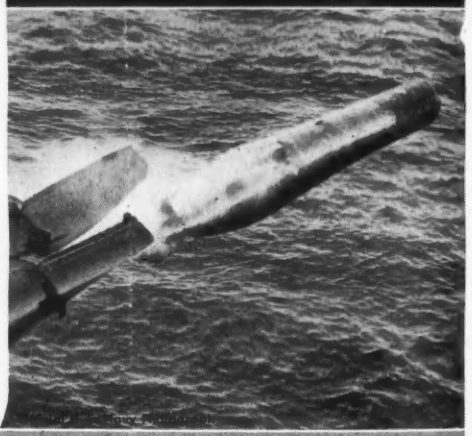

DOWNINGTOWN

Official U. S. Navy Photo

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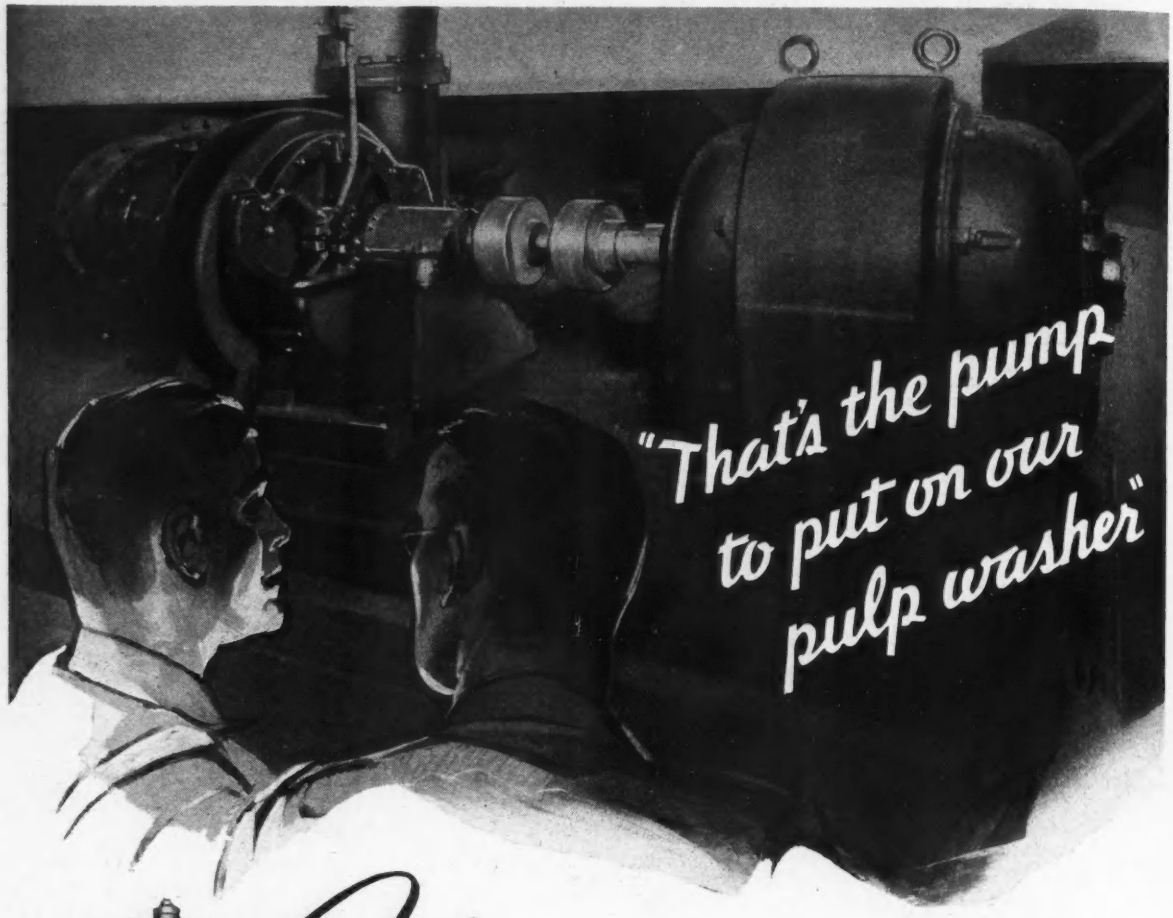

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Mill Employment Shows Slight Decline

Wisconsin Payrolls In Paper Industry Rose 2.4 Percent In February — Average Weekly Earnings Now $38.34 — Superintendents and TAPPI Will Hold Meeting April 22 — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 10, 1944—While February employment in Wisconsin paper and allied industries showed a decline of 0.3% compared with January, 1944, and was unchanged from the corresponding month of 1943, weekly pay rolls were up 2.4% compared with January, 1944, and 6.5% compared with February, 1943, according to a report issued by the Industrial Commission of Wisconsin.

Employes totaled 23,200 in February, 23,300 in January, and 23,200 in February, 1943. Their weekly earnings totaled $886,000, $865,000 and $832,000, respectively. The average per employe in February, 1944, were $38.14 for 46.1 hours, or 82.7 cents per hour.

In the Milwaukee metropolitan area, 21 concerns in the paper and allied industries reported 2,157 employes on their pay rolls, a decline of 2.5% compared with January, but the average weekly payrolls amounted to $82,695, an increase of 0.6% compared with the previous month. Weekly earnings averaged $38.34 for 47.1 hours, or 81.4 cents per hour.

A. G. Wakeman Goes To Kimberly-Clark Corp.

Arthur G. Wakeman, Appleton, Wis., who completed two years of service April 1 with the War Production Board as director of the pulp and paper branch, has accepted a position with Kimberly-Clark Corporation, it was announced last Friday morning.

Mr. Wakeman will be co-ordinator of engineering, process development and expansion. Before he joined WPB, Mr. Wakeman was associated with the Fox River Paper Corporation of Appleton. He is expected to assume his duties with Kimberly-Clark about the middle of the month.

Superintendents and TAPPI To Meet Jointly

Wausau, Wis., will play host to the combined spring meeting of the Northwest division of the American Pulp and Paper Mill Superintendents Association and the Lake States section of the Technical Association of the Paper and Pulp Industry on April 22. About 175 persons from Wisconsin, the upper Michigan peninsula and Minnesota are expected to attend the sessions, which will be held at Hotel Wausau.

Discussion of post-war paper mill equipment will be headed by Earl Otto, Wisconsin Rapids, of the Consolidated Water Power and Paper Company. Chairmen of the sectional meetings will be Lester J. Smith, Combined Locks, Wis., of the Combined Locks Paper Company, on paper machines, and T. R. Probst, Menasha, Wis., and Neil Christian, Port Edwards, Wis., of the Nekoosa-Edwards Paper Company, sulphite problems.

Technical subjects before the TAPPI group will be led by John Graff of the Institute of Paper Chemistry at Appleton, Wis. The principal speaker at the noon luncheon has not been announced. During the afternoon there will be visits to the Rothschild, Brokaw and Mosinee paper mills, and bowling and golf will be other diversions. Luncheon and bridge are being arranged for the ladies.

During the evening of April 21 there will be a meeting of the Ancient Order of Chinese Paper Makers at the hotel. New members will be initiated, and the group will renew its activities, which have been curtailed.

This organization also plans an initiation at its meeting in Chicago at the meeting of the Superintendents association, May 24 to 26.

Contemplate No Change in Hoskins Policy

Marathon Paper Mills Company of Rothschild, Wis., which has taken over the Hoskin Paper Company plant at Menominee, Mich., on a long-term lease, is planning no immediate changes in manufacturing and sales policy beyond those made necessary by future government directives. It will strive to maintain the pleasant relationship that has existed in the past between Hoskins and the trade, according to John Stevens, Jr., Marathon vice president.

Richard A. Hoskin, president and general manager of the Hoskin firm, will continue as resident manager. The Hoskin Paper Company's present plant was erected in 1921 and its principal products

(Continued on page 36)

Midwest Reports Delivery Problems Acute

Heavy Paper Demand Maintained With Backlog Orders Mounting In Some Lines — Professional Paper Group Meets — Salesmen See Baseball Motion Picture — Local Paper Salvage Drive Gains.

CHICAGO, Ill., April 10, 1944—The Chicago paper market indicated little change in the over all paper situation this week. The pulp problem continued to be very serious in virtually all grades and some commentators expressed the opinion that the manpower situation would make things worse in the near future. The allocation program of WPB was reported here to be making it exceedingly "tough" for mills who were hard pressed to fill requirements, take the materials provided them and make the deliveries requested. Civilian supply problems were that much more acute.

Ceilings Prove Handicap

Waste paper sources were not too plentiful and some of the local waste paper executives indicated that ceilings on prices were preventing some part of the waste paper from getting on the much needed market. The box industry, faced with an almost "impossible" situation, was attempting to determine just how it would fare under recent curtailment orders. All other lines were in great demand, backlogs of orders running more and more into the future months.

Professional Paper Group Meets

The Chicago Professional Paper Group held its regular monthly meeting on Monday evening, April 3 at the Hamilton Hotel. More than 100 enjoyed the dinner while an added twenty five guests came for the speaking program. Harold Alley, president, of Tested Papers, Inc., presided at the meeting which was featured by two talks, one by Christopher W. Brown, editor of Modern Packaging and the other by S. M. Hull, library research director of the Western Electric Company.

New Importance of Paper in Packaging

Mr. Brown discussed the "New Importance of Paper in Packaging" and did a most excellent job of trying to forecast the fate of the packaging industry in post-war days. With reference to the problem of whether or not paper would be as important in the post-war world as it is today, Mr. Brown thought that this might be true but that such popularity would ultimately be determined by functional uses, the practicality of each item. "New packaging will survive," declared the speaker, "as its importance is judged by the user. Standards of performance will be the acid test." Mr. Brown likewise discussed the development of the present emergency in the paper industry and stressed the ways in which the industry had assumed a dominant role in certain lines, with particular emphasis on its performance in supplying the right kind of packaging for lend-lease shipments.

Mr. Hull, who nearly twenty years ago was blinded by an accident at Western Electric Company but who continues to hold an important position with that company and who has made many important contributions to his profession, stressed the increasing importance of research and of continually reading and seeking out new developments and new uses "until it hurts."

Cognizance was also taken of the many important topics discussed at the War Conference the previous week at which the Chicago Professional Papers Group played a most important participating and cooperative part.

Salesmen View Baseball Movie

The western division of the Salesmen's Association of the Paper Industry held its first open meeting of the current season on Monday noon, April 3 at the Hotel Sherman. A good crowd was present to view the American League's baseball picture "Highlights of the 1943 World Series." The SAPEYES were pretty fortunate to get the film which has been seen mostly by Uncle Sam's boys in the training camps. A vote of thanks was extended to Ralph Burnett of the American Writing Paper Corporation for delivering so well as current chairman of the Entertainment Committee.

The members also got some early pre-season football dope from Luke Johnson of the Zellerbach Paper Company who doubles, in the Fall, as right hand man to George Halas, owner of the famous Chicago Bears professional football team. Corporal Logan Miller, formerly with Fraser Industries, was a guest at the meeting.

Mills Still Need Waste Paper

John R. Robinson, executive director of the Chicago Waste Paper Salvage Committee, reported this week that waste paper collections in Chicago were up in March but the paper consuming mills in the midwest were still operating short of capacity. During March, Mr. Robinson reported, the thirty four mills in the midwest were supplied by Chicago and other midwestern cities with an average of 41,500 tons of waste paper each week. A weekly quota of 47,000 tons is required for capacity operations according to the factual reports of the Committee. This monthly tonnage deficit of 22,000 tons must be largely made up from the Chicago area itself. Actual collections in Chicago itself during March were 25,455 tons, an increase of more than 3000 tons over the February accumulations which were spurred on by a very well coordinated publicity drive. January's total of 29,000 tons represented the peak effort which seemed to synchronize with the peak efforts of the publicity program as well. Industrial salvage resulted in the greatest single contribution to the accumulation with the war plants and other industries in this area contributing 13,500 tons to the total. Building owner and manager groups added 6000 tons while the school childrens' efforts brought out 5255 tons. All figures are in addition to the normal pre-war waste paper salvage of 1500 tons a day in Chicago.

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Obituary

Andrew L. Kreutzer

Andrew L. Kreutzer, aged 81, one of the founders of the kraft paper industry in the Wisconsin River Valley and a pioneer attorney at Wausau, Wis., died Monday evening, March 27, at the home of a daughter, after failing health since last July.

He helped found the Mosinee Paper Mills Company, Mosinee, Wis.; the Tomahawk Kraft Paper Company, Tomahawk, Wis., and the Wisconsin Valley Trust Company, Wausau. He was treasurer of the Mosinee company and president of the Tomahawk company at the time of his death, and had served as president of the trust company until 1931. In 1927 he announced his candidacy for governor of Wisconsin, but was forced to withdraw because of ill health. From 1898 to 1902 he served as state senator. He came to Wausau in 1888 to study law and later was associated in practice with Marvin B. Rosenberry, president chief justice of the Wisconsin State Supreme Court.

He helped organize the Wausau Sulphate Fiber Company in 1910. The firm was the predecessor of the present Mosinee Paper Mills Company, with offices and plant at Mosinee. He served continuously as its treasurer. He was president of the Tomahawk concern since its organization, about 1921.

He was a charter member of the Wausau Elks Lodge, a member of four Wausau bodies of the Masonic York rite and a member of the Masonic Consistory and the Mystic Shrine. He was also a charter member of the Wausau Club and for many years a member of the Wausau Country Club.

Survivors include two children, Mrs. P. M. Wilson, Wausau, and Samuel Knot Kreutzer, Evanston, Ill.; six grandchildren and two great grandchildren.

Funeral services were conducted Thursday afternoon, March 30, at the First Universalist Church by the Rev. Ray Darwin Cranmer. Burial was in Pine Grove Cemetery at Wausau.

Alfred Wagner

Alfred Wagner, treasurer and chairman of the board of the Single Service Containers, Inc., of 205 East Forty-second street, New York, died March 30 in the Uptown Club, 60 East Forty-second street. He was 61 years old and lived on Shore Road in Greenwhich, Conn.

Mr. Wagner founded the container firm in 1939. Previously he was vice president of the Stevens and Thompson Paper Company of Greenwich. He was also a former president of the American Piano Company and of the Chickering Piano Company, a former vice-president of the Aeolian Company, a director of the Bankers Commercial Corporation and a market counselor to the paper industry.

He leaves a widow, Mrs. Caroline Jarvis Wagner, and three daughters, Mrs. Marion W. Mead, Miss M. Esther Wagner and Mrs. Carolyn W. Edgar, all of Greenwich.

Willard T. Libby

Willard T. Libby, sales manager of the Claremont Paper Company, 342 Madison avenue, New York, died on April 3 of pneumonia at Knickerbocker Hospital.

Mr. Libby was born at Durham, Maine and was graduated from Bowdoin College in 1899. Directly thereafter he started work with the Pejepscot Paper Company and subsequently was manager of the old International Paper Company mill at Turners Falls, Mass. and the Remington Mill at Pyrites, N. Y. He also sold colors and dyestuffs for the E. I. Du Pont de Nemours & Co. for about one year. He was associated with the Brown Co. at Berlin, N. H. for 10 years.

Mr. Libby joined the New York sales office of the Claremont Paper Company in 1932 and was appointed sales manager in September 1943 and held that position at the time of his death.

Surviving are his wife, Lelia Small Libby, of New York; two daughters, Mrs. Sherwood Aldrich and Mrs. George Bean, both of Brunswick, Maine; a son, Lawrence B. Libby, of the American Red Cross, Washington, D. C., and a sister, Miss Henrietta Libby, of Portland, Maine.

Major R. M. Johnston

Major Richard Moffit Johnston, member of Johnston, Keffer & Trout, wholesale paper merchants, Harrisburg, Pa., and executive officer of the Fourth Infantry of the Pennsylvania State Guard, was instantly killed in an automobile accident on April 1. He was 38.

After graduating from Princeton in 1927, he entered the employ of the Johnston Paper Company, in which his father was then senior partner, and after the latter's death he became the senior partner.

Major Johnston was the third generation of his family in the paper business, his grandfather, the late Robert A. Johnston, having been a pioneer in that line 75 years ago.

The victim's father, Paul Johnston, noted charity and civic worker, succeeded his father, Robert A., as senior partner in the firm in 1906, when the name of the business was changed to the Johnston Paper Company. Later, after Harry G. Keffer and Brook Trout joined the organization, the name of the business was changed to Johnston, Keffer & Trout.

Gordon S. Smith

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 10, 1944—Gordon S. Smith, president of the Champion Container Company, Third and Somerset streets, died in the locker room of the Philadelphia Country Club yesterday after collapsing while climbing a hill to the first tee. He was 52.

Mr. Smith complained of feeling ill while approaching the first tee with Anthony G. Felix, vice-president of the Pennsylvania Company; Carl Tracy of the First National Bank and T. L. Groseclose. They assisted him to the locker room, where physicians summoned from the clubhouse attended him. He appeared to be recovering when he collapsed again. He was pronounced dead by his personal physician, Dr. Charles L. Deardorff.

A native of Long Island and a Princeton graduate, he came here to start the Champion Company shortly after World War 1. He was also a member of the Racquet Club.

Surviving him are his wife, Mrs. Marion Smith, and two daughters, Mrs. Bernard T. Converse, and Nancy Smith, a student at Pine Manor Junior College.

Issues Minimum Wage Notice

William R. McComb, Acting Administrator, U. S. Department of Labor, has issued the following notice in the determination of the prevailing minimum wages in the paper and pulp industry:

WHEREAS, the prevailing minimum wage determination for the Paper and Pulp Industry issued by the Secretary of Labor on September 26, 1939, pursuant to the provisions of Section 1 (b) of the Walsh-Healey Public Contracts Act (49 Stat. 2036, 41 U. S. C. Supp. III, sec. 35), provides that the minimum wage for employees engaged in the performance of contracts with agencies of the United States Government subject to the provisions of that Act, for the manufacture or furnishing of pulp and other fiber and the primary conversion of pulp and other fiber into paper and paper board, and in addition, the manufacture and conversion of primary paper into toilet paper and paper towels, coated book paper and paper shipping sacks, is the amount indicated for each of the following groups of States:

For the States of Virginia, North Carolina, South Carolina, Georgia, Alabama, Tennessee, Kentucky, Mississippi, Louisiana, Arkansas, Oklahoma, Florida, and Texas, 35 cents an hour or $14.00 per week of forty hours, arrived at either upon a time or piecework basis;

For the States of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Ohio, Indiana, Michigan, Wisconsin, Illinois, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Kansas, New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, Nevada, and the District of Columbia, 39 cents an hour, or $15.60 per week of forty hours, arrived at either upon a time or piece-work basis;

For the States of Washington, Oregon, and California, 50 cents an hour or $20.00 per week of forty hours, arrived at either upon a time or piece-work basis; and

WHEREAS, the minimum wage required to be paid by the employers engaged in the paper and pulp industry subject to the provisions of the Fair Labor Standards Act of 1938 is not less than 40 cents an hour pursuant to the wage orders for the pulp and primary paper industry and for the converted paper products industry, issued by the Administrator of the Wage and Hour Division and effective September 16, 1940, and February 15, 1943, respectively; and

WHEREAS, it appears that substantially all employees subject to the paper and pulp industry wage determination of the Secretary are engaged in commerce or in the production of goods for commerce, as that term is defined in the Fair Labor Standards Act of 1938, and that, consequently, the aforementioned wage orders of the Administrator have had the effect of establishing not less than 40 cents per hour as a prevailing minimum wage for persons employed in the paper and pulp industry; and

WHEREAS, it appears advisable to amend the wage determination for the Paper and Pulp Industry by providing that the prevailing minimum wage for persons employed in the industry in those States presently subject to a wage determination of less than 40 cents per hour, shall be not less than 40 cents per hour,

Now, THEREFORE, notice is hereby given to all interested parties of the opportunity to show cause on or before April 30, 1944, why the Secretary of Labor should not amend the wage determination for the Paper and Pulp Industry pursuant to the provisions of Section 1 (b) of the Walsh-Healey Public Contracts Act so that the prevailing minimum wage in the industry in the following States will be 40 cents an hour or $16.00 per week of forty hours, arrived at either upon a time or piece-work basis:

For the States of Virginia, North Carolina, South Carolina, Georgia, Alabama, Tennessee, Kentucky, Mississippi, Louisiana, Arkansas, Oklahoma, Florida, Texas, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Ohio, Indiana, Michigan, Wisconsin, Illinois, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Kansas, New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, Nevada, and the District of Columbia.

An original and four copies of all objections, protests, or any statements in opposition to or in support of the proposed amendments should be addressed to the Administrator of the Wage and Hour and Public Contracts Divisions, Department of Labor, 165 West 46th street, New York 19, N. Y., and should be filed with the Administrator not later than April 30, 1944.

Complain Against Edgemont Paper Co.

The Office of Price Administration has filed a complaint against the Edgemont Paper Company of York, Pa., charging improper pricing methods and twenty-four specific instances of overceiling sales of paper board.

This action, filed in the U. S. District Court for the Middle District of Pennsylvania, is preliminary to injunction proceedings to be instituted against the company for violations of RPS 32 which covers sales of paper board.

The complaint was filed by the Harrisburg District Office of Price Administration, which is now preparing to institute an Administrator's action for treble damages for approximately $15,000.

Edgemont Paper Company, Inc. and George E. Gartman, president and treasurer, are named as defendants. The complaint charges this firm with selling inferior paper board to box and container manufacturers at prices higher than permitted by RPS 32.

Taggart Corp. Personnel Changes

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., April 10, 1944—Announcement is made of changes in the management of the local branch of the Taggart Corporation and several of its subsidiaries throughout this country and Canada. Thereon A. Contryman, who has been superintendent of the plant here for a number of years, has been promoted to the position as assistant to Joseph M. Harnit, general superintendent of all plants. R. Charles Boehnke, for many years assistant superintendent, has been elevated to the position as superintendent of the local branch. It was also stated that Mr. Contryman in his new post would be in charge of various kinds of work involving the different branches of the Taggart and St. Regis Corporations and the numerous bag and paper plants affiliated with it.

*Steam

* This is the 9th of a series of informative messages concerning the meaning and significance of commonly used tests and terms employed to describe the characteristics of lubricating oils.

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WPB Adopts Production Status

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1944—Steps taken to assure the manufacture of adequate supplies of certain types of paper and paper board to meet wartime demands in the second quarter of 1944 were announced by the War Production Board today. In order that the necessary quantities of these grades of paper and paper board, as determined by WPB, will be produced from the wood pulp allocated to United States mills, WPB has established a quarterly preferred production status covering about 60 types of paper and all types of container board.

Hereafter, mills will be required to produce in full the scheduled amounts of those types of paper and board having preferred production status, even at the expense of production of other types of paper products. Specific allocations of wood pulp must be utilized in the manufacture of papers and paperboards listed in Direction 1 to General Preference Order M-93, issued April 4, 1944.

The grades of paper and board given preferred production status include: all grades of container board; several types of photographic, blue print and reproduction papers; postal cards; target paper; carbonizing and container tissue; rag map and chart paper; wet strength map paper; greaseproof, glassine and vegetable parchment; unbleached kraft wrapping paper; asphalting, resin impregnated stock, multi-wall bag and sack papers; twisting and spinning papers and twisting tissue; hot and cold drink cup stock; cable paper and vulcanizing stock; industrial towels and napkins; sanitary and toilet tissue; fruit and vegetable wrapping tissue; milk bottle stock, milk bottle hood and lip cover stock, and certain industrial papers.

All consumers of wood pulp have been directed on Form WPB-2973 to produce during the second quarter of 1944 specific tonnages of these types of paper and paper board. In addition, market wood pulp shipments are given a preferred status by WPB Direction 1 to M-93. If a producer is unable to make all wood pulp deliveries which he has been directed to make, he must reduce deliveries to his own mills to the extent necessary to complete all deliveries to other consumers, WPB said.

Newsprint Supply Slightly Higher

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1944—Total available newsprint for all second quarter requirements in the United States will approximate 835,000 tons, compared with 819,000 tons during the first quarter, and no further percentage cuts in usage during the second quarter are anticipated, the War Production Board announced today.

United States newsprint orders in the second quarter are expected to total 822,000 tons, which would leave approximately 13,000 tons for contingencies including appeals; but no rebuilding of publishers' inventories will be possible, WPB pointed out.

Harold Boeschenstein, Acting Director of the Forest Products Bureau, and Arthur R. Treanor, Director of the Printing and Publishing Division of the WPB, reviewed the newsprint supply situation during the first quarter of 1944 and the probable outlook for the second quarter.

Mr. Treanor said that first quarter newsprint orders placed with North American newsprint mills by United States newspaper publishers and other consumers, within the authorizations granted under WPB Limitation Orders L-240 and L-241, totaled approximately 784,000 tons. This, compared to a total supply of 819,000 tons as announced by WPB, resulted in a balance of 35,000 tons between first quarter orders and new supply.

Mr. Boeschenstein pointed out that additional Governmental and other war urgency orders for newsprint and "news machine" pulp were approved by the War Production Board for first quarter delivery, and reduced this balance by approximately 20,000 tons, leaving a net carryover of 15,000 tons available from Canadian sources. By agreement with Canada, this carryover will be added to the new supply available from the Dominion in the second quarter which, together with the production of United States and Newfoundland mills, will provide approximately 835,000 tons of newsprint for all United States second quarter requirements.

Urges More Waste Paper Be Collected

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1944—Waste paper collections are running behind estimates for the first quarter of 1944, the Office of War Information said today on the basis of figures from the War Production Board. Inventories, consequently, remain at almost the same low point as on January 1. Unless collections can be increased, it will become more difficult to meet quotas as laid down, the OWI said.

Inventories of waste paper, which stood at 248,000 tons at the end of 1943, had risen only to 252,000 tons at the end of February, after actually dropping below 248,000 in January.

Waste paper, essential to the manufacture of paper and paperboard, had been expected to be collected at an average rate of 550,000 tons a month during the first quarter of the year. Instead, collections in January were only 537,000 tons, and preliminary estimates for February put collections at 548,000. This latter figure is subject to revision downward. An indication of what may occur is the fact that preliminary estimates had put January collections at 570,000.

It is not implied that those agencies devoted to collection of waste paper have not been doing a good job. Actually, receipts have risen steadily, from 499,000 tons in September of last year, to the 537,000 tons in January. However, in order to supply adequate inventory to meet the increasing demand of paper for military purposes, the collection goal has now been set at 666,000 tons per month.

Hammermill Is Three Time Winner

For the third time, the Hammermill Paper Company of Erie, Pa., has won the Army-Navy "E" in recognition of its continued high achievement in the production and delivery of paper to our Armed Forces.

Hammermill received its original "E" Production Award on September 15, 1942. It was the first concern in the pulp and paper field to be so honored by the War Department. The Erie mill received a second award on April 10, 1943, and at that time added a single White Star to its pennant. The present third award places a second White Star on the "E" flag flying above Hammermill's plant.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending April 8, 1944

STOCKS

	High	Low	Last
A. P. W.	2⅝	2⅝	2⅝
Armstrong Cork Co.	37½	37	37¼
Celotex Corp.	12	11¾	12
Celotex Corp., pf.	18	17⅜	18
Certain-Teed Products Corp.	5½	5¼	5¼
Certain-Teed Products Corp., pf.	61½	60¼	60½
Champion Paper & Fibre Co.	24⅛	24	24
Champion Paper & Fibre Co., pf.	109¾	109¼	109½
Congoleum Nairn Co.	23¾	23⅜	23⅜
Container Corp. of America	23	22¾	22⅞
Continental-Diamond Fibre Co.	11¾	11¾	11¾
Crown-Zellerbach Co.	16¾	16¼	16¾
Crown-Zellerbach Co., pf.	99¼	98¼	98½
Dixie Cup Co.	16	16	16
Dixie Cup Co.—A	44⅜	44⅛	44⅜
Flintkote Co.	22⅜	21¾	22⅜
Flintkote Co., pf.	107	104½	104½
Robert Gair	3¾	3⅜	3¾
Robert Gair, pf.	15	14½	15
International Paper Co.	15⅜	14½	15⅛
International Paper Co., pf.	73½	72⅜	73½
Johns-Manville Corp.	90¾	88¼	90¾
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	34¾	34⅛	34¾
MacAndrews & Forbes	26¼	25¾	25¾
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	38	37¼	38
Mead Corp.	9	8⅝	9
Mead Corp., pf. A—6%	89½	89½	89½
Mead Corp., pf. B—5½%	80½	80	80½
National Container Corp.	14⅜	14⅛	14⅜
Paraffine Companies, Inc.	49	47½	48¼
Paraffine Companies, Inc., pf.	105	105	105
Rayonier, Inc.	14⅜	14	14¼
Rayonier, Inc., pf.	30	29½	29¾
Ruberoid Co.	29½	29	29
Scott Paper Co.	40	38¾	40
Scott Paper Co., pf.	109½	109½	109½
Sutherland Paper Co.	31	31	31
Union Bag & Paper Corp.	10⅜	10	10
United Paperboard Co.	5⅛	4⅞	4⅞
U. S. Gypsum Co.	73¾	71½	73¾
U. S. Gypsum Co., pf.	176	176	176
West Virginia Pulp & Paper Co.	18½	17¾	17¾
West Virginia Pulp & Paper Co., pf.	107	106½	106½

BONDS

Abitibi Pulp & Paper Co., 5s '53	70⅜	69½	69½
Celotex Corp. 3¾s '55	103¾	103⅝	103¾
Certain-Teed Products Corp. 5½s '48	101¼	100½	100½
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 5s '47	104	104	104
International Paper Co. 6s '55	106⅛	105¾	106⅛
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending April 8, 1944

STOCKS

	High	Low	Last
Great Northern Paper Co.	33	32	33
Hummel-Ross Fibre Corp.	4⅜	4¼	4⅜
St. Regis Paper Co.	4¾	4¼	4½
St. Regis Paper Co., pf.	149	149	149
Taggart Corp.	5½	5½	5½

BONDS

American Writing Paper Co. 6s '61	101¼	100¼	101¼

B. C. Paper Co. Makes Good Report

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., April 10, 1944—B. C. Pulp and Paper Company net profit of $163,351 after deduction of 1943 taxes and depreciation is reported in the annual report for year ending December 31. This has been counterbalanced by additional provision of $200,000 for taxes on prior years, adding a net $34,469 to the company's deficits. Net profit in 1942 was $241,980. Deficit of the company is now $379,475 against $1,573,855 at end of 1939. Operating profit during 1943 was $1,123,042 compared with $1,722,983, in 1942. Current assets have risen from $2,255,382 to $3,287,976 and total assets from $11,421,804 to $11,505,821. Interest and sinking fund on $6,050,000 issued first mortgage gold bonds were met in full.

Due chiefly to continued shortage of logs, production of the year was only slightly in excess of the previous year, says Lawrence Killam in his presidential report. "Market demand for the various grades of bleached sulphite pulp continues very strong," he reports, "and your company was the largest individual contributor of these in meeting the needs of Great Britain."

Selling prices have remained generally unchanged. Cost of production, while above that of previous years, has not changed materially during the year. The company expects a decision on income and excess profits taxes, but statements for 1940 and 1943, inclusive, are still subject to adjustment. During the year $390,000 was paid relative to such taxes. Amount provided in the accounts was $300,000.

Mead Corp. Makes Good Report

The 1943 annual report of the Mead Corporation, issued for publication recently, reveals an increase of 8.92% in net sales to $36,278,042 from the 1942 volume of $33,858,432. The company attributes the improvement to the inclusion in 1943 of a full year's sales of the Escanaba Paper Company and those of the Manistique Pulp and Paper Company since its acquisition in September, 1943.

Earnings for last year, after setting aside $1,827,500 for Federal and State income and excess profits taxes, and $75,000 reserve for contingencies, amounted to $1,078,141. This is equal, after preferred dividend requirements, to 89 cents each on 693,607 common shares outstanding and compares with $1,357,469 earned in 1942.

Current assets are listed in the balance sheet as of December 24, 1943, at $13,197,510 and current liabilities at $4,340,974, which compare with $13,126,551 and $4,581,195, respectively, on Dec. 26, 1942.

Continental-Diamond Earns $460,286

The Continental-Diamond Fibre Company reports as follows for 1943: Net profit was $460,286 after $831,094 taxes on income, equal to $1.02 a share, on 450,000 shares, comparing with $562,586 after $1,131,920 taxes in 1942. Net sales were $12,309,960, against $11,336,539. Current assets at December 31 were $4,029,433, against $4,092,972 a year before, and current liabilities were $885,296, against $804,594.

Brown Co. Nets $1,126,415

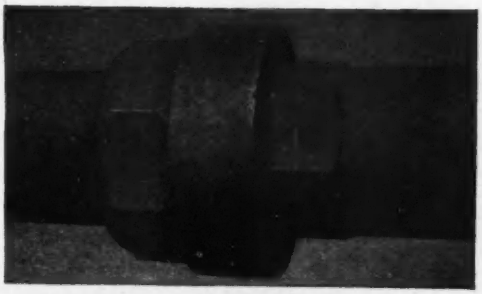
The Brown Company reports for the year ended November 30, 1943 consolidated net profit, after taxes, of $1,126,415 against $2,107,076 for 1942. Brown Company, the parent company, shows net profit after taxes of $354,895, compared to $1,071,087 in 1942, and Brown Corporation, the wholly

Walworth Hi-Test Cast Iron Threaded Pipe

gives these three special advantages

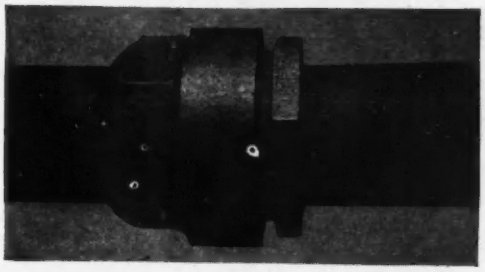
1 CORROSION RESISTANCE where it's needed most

Extra wall thickness at the threads in Walworth Hi-Test Oversize Threaded joint provides greater strength and resistance to corrosion.



2 TIGHT EXPANSION JOINTS

Hi-Test flexible expansion joints, available with Walworth Hi-Test Cast Iron Pipe, provide a tight connection and allow for 1½" expansion or contraction. There are no exposed threads or bolts.



3 FLEXIBILITY IN THE LINE

Notice the unusual flexibility achieved with a Hi-Test expansion joint and two standard 20' lengths of 1¼" Walworth Hi-Test pipe.

Walworth I.P.S. Hi-Test Cast Iron Threaded Pipe with regular pipe size threads is primarily for use in drainage, vent and waste lines in buildings and for pipe lines above or below ground. It complies with Federal Specification No. WW-P-356, dated August 19, 1936, and is recommended in all sizes for 175 lbs. Non-Shock Cold Water Pressure.

Walworth I.P.S. and W.P.S. Hi-Test Pipe with oversize threads are principally for use in underground water and gas distribution systems. For complete details write for Bulletin 57.

You'll find pertinent information on Walworth's complete line of valves, fittings, pipe, and pipe wrenches in the new Walworth Catalog 42. Included are 78 pages of practical engineering data that simplify valve selection and make piping layouts easier. Write, on business stationery, for your free copy. Address: Walworth Company, 60 E. 42nd St., New York 17, N. Y. Dept. 413.

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WALWORTH

valves AND fittings

WALWORTH ★ VALVES AND FITTINGS ★ ESTABLISHED 1842

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

owned Canadian pulp producing subsidiary shows a net profit after taxes of $883,086 for 1943 against $1,230,799 for the previous year. Consolidated sales were $30,997,931 in 1943 and $33,467,085 in 1942.

A major factor in the reduction of sales and earnings during 1943 was the industry wide shortage of pulpwood occasioned by scarcity of woodsmen which resulted in curtailed pulp production and greatly increased pulpwood costs. Consolidated earnings after estimated taxes for the 1944 fiscal year to date approximate those of the corresponding period of 1943.

The Annual Report outlines numerous aspects of the Company's post-war plans, including the eventual concentration of all domestic pulp production in its Cascade Mill at Berlin, N. H.

Mexico Imposes New Tariff

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 5, 1944—A new import tariff classification covering white newsprint in sheets has been established with a duty of 0.07 pesos per gross kilogram, by a Mexican executive decree, says a report to the Department of Commerce. The new classification covers white newsprint in sheets not less than 60 centimeters wide and 90 centimeters long, when containing more than 80 percent mechanical wood pulp, weighing more than 50 but not more than 57 grams per square meter, and yielding up to 6 percent ash.

Previously, there was no classification in the Mexican Import Tariff for newsprint imported in sheets. When imported in rolls not less than 40 centimeters wide and 71 centimeters in diameter, white newsprint containing more than 80 percent mechanical wood pulp, weighing more than 50 but not more than 57 grams per square meter, and yielding up to 6 percent ash, remains dutiable at 0.07 peso per legal kilogram.

Puget Sound Nets $1.19

The Puget Sound Pulp and Timber Company reports a net profit of $456,650 for 1943, equal to $1.19 per common share, after $600,000 provision for estimated Federal taxes. These audited figures compare with net profit of $702,405 for 1942, not including $176,206 from life insurance, or $1.94 per common share, after $1,840,000 for Federal taxes.

Plant operations approximated 65 per cent of capacity in 1943, against full capacity in the first nine months and 60 per cent in the fourth quarter of 1942. Net sales and other revenue in 1943 totaled $6,406,762, in comparison with $8,603,259 in 1942.

Gaylord Container Shows Gain

The Gaylord Container Corporation reports as follows for the year to December 31: With gross sales at $34,127,713, a gain of 13.7 per cent over 1942, net profit was $1,103,097, or $1.56 a share on the common stock, against $1.55 in 1942. Current assets, including $3,127,831 in cash, were $8,747,274 and working capital was $5,851,190, an all-time high.

River Raisin Increases Earnings

The River Raisin Paper Company reports a net income of $213,886, or 46 cents a share for 1943 against $142,285, or 31 cents a share, for 1942.

International Earns $8,413,808

In presenting the forty-sixth annual report of International Paper Company to its stockholders, Richard J. Cullen, chairman of the corporation and John H. Hinman, president, state that in 1943 consolidated net profit of International Paper Company and its subsidiaries amounted to $8,413,808 as compared to $7,814,319 in 1942, an increase of $599,489. In considering this increase it must be borne in mind that the 1942 figure was after deducting $2,400,000 special obsolescence reserve which was discontinued from January 1, 1943. Total sales and other income amounted to $221,328,207 in 1943 an increase of 3% over the corresponding figure for 1942.

During 1943 International Paper Company and its subsidiaries produced a total of 2,363,511 tons of paper, container board and pulp as compared with 2,614,944 tons in 1942, a decrease of 9.6%. This reduction is due almost entirely to shortage of pulpwood. Tonnage by grades was as follows:

	1943	*1942*
UNITED STATES:		
Kraft container board (unbleached)	819,964	831,929
Kraft wrapping and bag paper (unbleached)	124,753	174,117
Bleached kraft paper and board	139,814	135,012
Unbleached kraft specialty papers	122,992	114,479
Kraft pulp for sale	68,640	168,617
Total kraft board, paper and pulp	1,276,163	1,424,154
Groundwood specialty papers	186,924	183,781
Book and bond papers	127,948	136,669
Other pulp and paper grades	27,827	28,438
Jute board	.....	27,037
Total United States	1,618,862	1,800,079
CANADA:		
Newsprint	457,066	494,400
Dissolving pulp	136,227	141,221
Other sulphite pulp	136,759	116,459
Corrugating board	.....	14,893
Other grades	14,597	47,892
Total Canada	744,649	814,865
Total	2,363,511	2,614,944

The sulphite pulp production shown above includes tonnage shipped to the Company's northern United States mills for their own use amounting to 47,940 tons in 1943 and 53,334 tons in 1942.

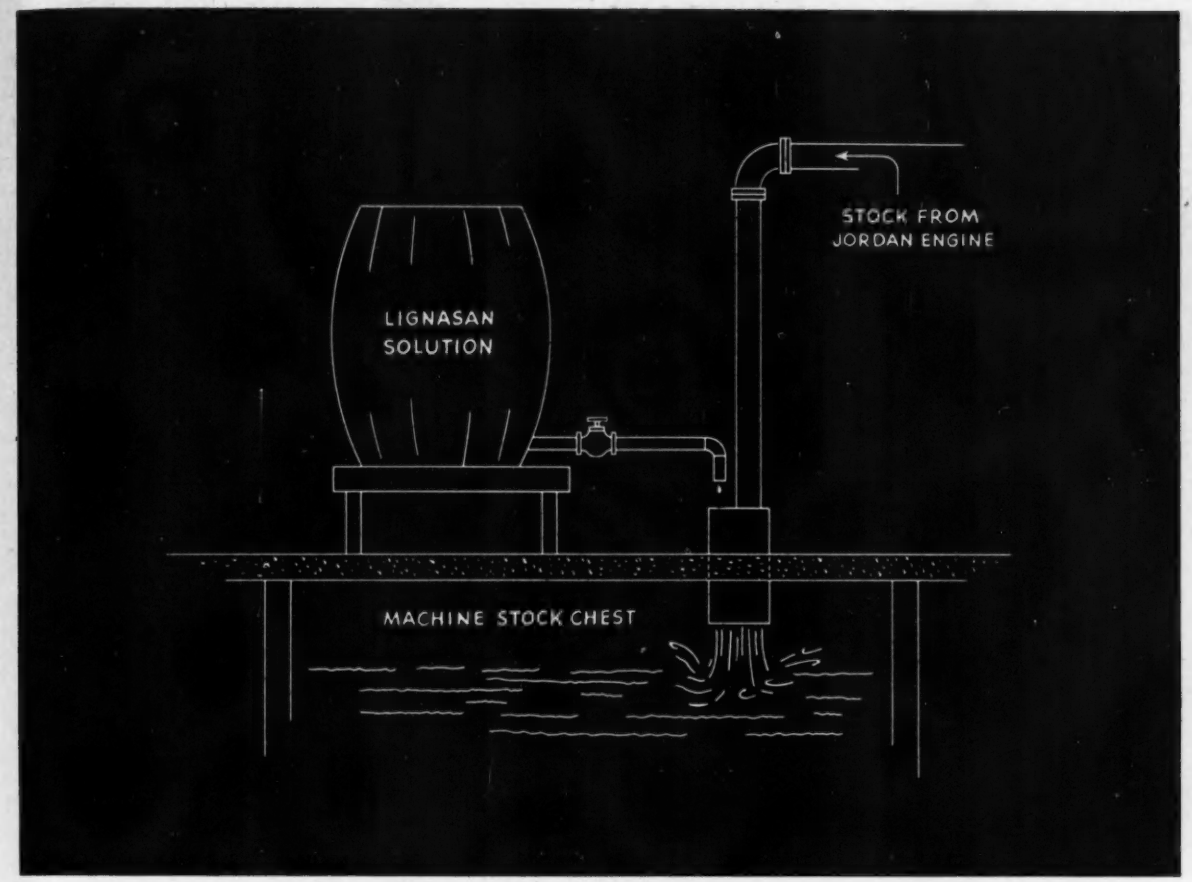
The tonnage figures in the above tabulation do not include the companies' output of converted products, such as corrugated kraft shipping containers, paper bags, etc., manufactured for the most part from paper and board produced at the Company's own mills.

A Joint Committee

An item was printed in a recent issue of the PAPER TRADE JOURNAL stating that the War Production Board had announced the formation of a Vegetable Parchment Industry Advisory Committee. This item produced some misunderstanding as it is really a joint Glassine and Greaseproof and Vegetable Parchment Industry Advisory Committee as shown by the personnel of the committee.

To Dismantle Oakland Paper Mill

The Osborne Paper Mill Equipment Company have acquired the Oakland Paper Mill located at Manchester, Conn. This includes one 5 cylinder paper machine formerly owned by C. H. Dexter & Sons, Windsor Locks, Conn. It is understood that the new owner will dismantle and sell all of the equipment now located at the mill.



Last chance to control slime

FOR PLANTS THAT DO NOT HAVE BEATERS, for mills that depend on hydropulpers and Jordan engines only, the above set-up represents a simple way of adding *slime-controlling* "Lignasan" to stock as it enters the machine stock chest. In essence, the plan merely consists of bleeding "Lignasan" solution into the stream of pulp coming from the Jordans.

"Lignasan" is one of the most powerful bactericides and fungicides known. It is effective even in low concentrations. Approximately 4 ounces per ton of dry fiber usually can be relied upon to prevent slime formation and souring.

When you add "Lignasan" to pulp held in machine stock chests, you not only protect the pulp from souring during extended shutdowns . . . *you make the entire subsequent paper-making operation easier.* By checking the growth of slime-forming organisms, you reduce clogging of pipes, screens and headboxes and materially cut down on the time and labor needed for washups and cleanings.

Many pulp and paper mill operators have credited "Lignasan" with substantial savings. Get the facts today, and learn how "Lignasan" can help *you* curb profit-stealing slime. Write our nearest branch office or E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.

BE A BLOOD DONOR—SAVE A LIFE

CONTROLS SLIME
PRESERVES PULP

Du Pont Lignasan

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BACTERICIDE AND FUNGICIDE

DU PONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Give Armco Spiral Welded the "REPAIR TRIAL"

If you have never used "ARMCO Spiral Welded" for your piping systems, now is a good time to become acquainted with this sturdy, money-saving pipe. Specify it for your next repair job. Then you'll know its many advantages first-hand when you plan your post-war installations.

Every foot of ARMCO Spiral Welded Pipe is prefabricated to fit your layout. Fittings are made to order and come welded to straight pipe runs. This eliminates flanges at every bend, reduces weight and saves hours of assembly. Even the most complicated assemblies slip together like magic.

Operating efficiency is another advantage. ARMCO Pipe has a smooth interior for high-flow capacity in process piping. The fewer flanges mean fewer joints and less chance for leaks.

Find out how ARMCO Spiral Welded Pipe can help on your toughest job. Diameters range from 6 to 36 inches, wall thicknesses from 7/64 to ½-inch. Just send us your plans and we'll give you an estimate and shipping dates. The American Rolling Mill Company, Pipe Sales Division, 1671 Curtis St., Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION

ARMCO

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Spiral Welded Pipe

MILL EMPLOYMENT DECLINES

(Continued from page 11)

are kraft and sulphite paper, waxed and oiled paper and grocery bags. It is a converting mill, and has no pulp mill. Before the war it converted Scandinavian pulp brought into the lakes by ocean-going freighters and canal boats. The mill has one paper machine and room for another.

F. B. Whiting Heads Campaign

Frank B. Whiting, head of the George A. Whiting Paper Company of Menasha, Wis., and of the Whiting-Plover Paper Company, Stevens Point, Wis., has been appointed general chairman of a campaign to be conducted at Menasha beginning May 1 to assist in financing the Salvation Army's war work and state humanitarian service.

NLB Orders Nekoosa-Edwards Election

The National Labor Relations Board has ordered an election to select a collective bargaining representative for employes of the Nekoosa-Edwards Paper Company of Port Edwards, Wis., at its logging camp at Misery Bay, Mich. The election was ordered following an NLRB hearing held at the request of the International Woodworkers of America (CIO).

State Conservation Will Aid A.F.A.

The Wisconsin Conservation Department will cooperate with the American Forestry Association in its appraisal of the war's effect on the forestry resources of the country, according to a recent announcement by E. J. Vanderwall, state conservation director. The survey, which will cover every forested state and county in the nation, was launched early last month to provide a factual basis for dealing with postwar reconstruction and problems of forest management.

Mr. Vanderwall said that the main objective of the appraisal is to provide basic information for intelligent handling of local, state and national postwar forest and land-use questions. He added that Wisconsin is fully aware that such a basis is necessary if public and industrial interests concerned with the forest and land economy are to be given proper consideration in postwar reconstruction programs.

J. A. Donery, former logging engineer in the United States Forest Service, will be regional consultant for Wisconsin, Michigan, Minnesota, Iowa and North and South Dakota. He will have his headquarters in Milwaukee, Wis.

The fact-finding survey is being directed by John B. Woods of Portland, Ore., timber valuation expert. Representing the lake states on an advisory council of five members is S. T. Dana, Ann Arbor, Mich., dean of the School of Forestry and Conservation, University of Michigan, and editor of the Journal of Forestry.

F. L. Allen Appointed Manager

MONTREAL, Que., April 10, 1944—Fred L. Allen has been appointed manager of manufacturing in the newsprint division Canadian International Paper Company, succeeding the late Irwin H. Copeland. Mr. Allen has been the company's chief engineer since 1936, with headquarters in Montreal, and has held various responsible positions in the manufacturing department of the company and its affiliates since 1927.

APPLETON

PAPER AND PULP MILL MACHINERY

Practically the entire output of our shops and foundry continues to flow directly into the war production program. Delivery, on schedule, of the many and varied items we build has meant changes and expansion. New precision tools were added time and labor saving equipment installed. New manufacturing methods and new skills were developed to maintain large volume. Made primarily to speed the day of Victory, these improvements will be here to speed the construction of new machinery and replacements for pulp and paper mills. Post-war employment and prosperity depend upon quick resumption of peace time activities, production and services. As soon as materials and manpower are released for civilian needs our enlarged facilities and added engineering experience will be available for all-out construction for the paper industry. Our engineers are ready now to co-operate in making the necessary preparations.

Eastern Sales Representatives
CASTLE & OVERTON, Inc.
630 Fifth Avenue, New York

THE APPLETON MACHINE COMPANY
APPLETON · WISCONSIN

"Supervised for Your Satisfaction"

this FITCHBURG "TRIUNE" Cotton Dryer Felt

is doing a great job of drying paper

Made of the finest cotton, carefully checked all through the spinning, twisting, weaving and final inspection

5 distinct weaves — For every paper
Prestretched and preshrunk if you desire

General Sales Agents

Morey Paper Mill Supply Co., 309 South St., Fitchburg, Mass.

Heavy Paper Demand

INDIANAPOLIS, Ind., April 10, 1944—Heavy demand for paper and paper products continued in this territory during the last week. The fly in the ointment continues to be lack of merchandise to sell. From all reports, the manufacturers both of paper and the converters are hard pressed to secure raw materials, though in some quarters are reports that the situation is not as bad as it was six months ago. However the situation is far from satisfactory. There is no doubt that Indiana manufacturers could sell all the paper they could produce. In addition to lack of raw materials, the labor shortage, far from improving, is becoming increasingly more stringent. The factories are finding it more and more difficult to obtain deferments for key men and they gradually are being taken into the armed forces.

In spite of all restrictions placed on newspapers and other publications, demand for newsprint exceeds the available supply.

Just what will happen to the demand for building and roofing paper is problematical. Certainly a vast amount of construction is needed in this city and the larger industrial centers of the state, particularly in residence construction. Due to government regulations, the building of high priced homes virtually is at a standstill. A lot of "jerry" construction is permitted as a stop-gap to aid in housing war workers.

Demand for waxed paper and cellophane continued good, particularly the former. But again there is the labor situation. One of the largest makers of waxed papers in the state continually advertises for men and can't keep up production, even when providing paper for bakeries and other essential food industries.

Import Paper Cases

The question whether wrapping paper not wholly consisting of kraft pulp is dutiable at 20 percent as kraft wrapping paper or at 25 percent as other wrapping paper is before the United States Customs Court, according to Warren B. Bullock, manager of the Import Committee of the American Paper Industry. The shipment in question is a sheet 75 percent kraft, 20 percent groundwood, and 5 percent sulphite. The paper was classified as other than kraft wrapping paper on the basis of the classification of kraft paper in effect at the time of the trade agreement with Finland in 1936, and not on the basis of any later definitions of wrapping paper set up as a war measure by the Office of Price Administration.

Pending a decision by the United States Customs Court on the claim that filtering paper in disc form is dutiable at 30 percent as paper cut into shape and not at the rate for tissue or filter paper, the Bureau of Customs has instructed collectors to impose this rate even on the true filter paper imported from England, as well as on the coffee filter paper formerly imported from Japan. Whether or not the new rate will apply to high priced English paper instead of the rate, lower, in this case, of 2½ cents per pound and 7½ percent, is before the Court. The British Reciprocal Trade Agreement fixed the latter rate, and the importers of the high grade paper claim the Trade Agreement affects filter paper in whatever shape it may be imported.

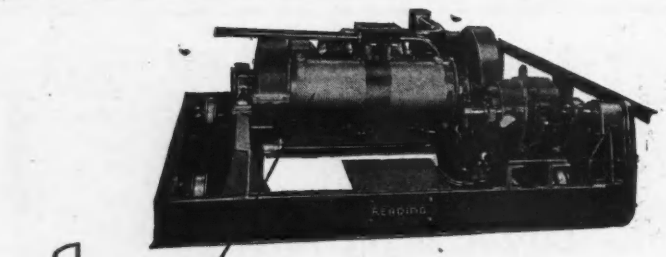
Research on Brand Names

Broad-gauge research on brand names and trade-marked goods in relationship to business growth and quality merchandising is being undertaken by the Brand Names Research Foundation, 420 Lexington avenue, New York, sponsored by a group of manufacturers of widely-known products.

The research program will provide a basis for educational activities designed to bring about wider understanding of the part brand names and trade marks have had in the development of business, providing employment and safeguarding consumers.

Officers of the Brand Names Research Foundation are: Chairman, George L. Russell, Jr., President, John B. Stetson Company; Vice-Chairman, A. O. Buckingham, Vice-President, Cluett, Peabody & Company; Treasurer, H. B. Snader, Treasurer, Vanity Fair Mills. The executive committee includes the above three officers, and Leo H. Heimerdinger, Sr., Chairman of the Board, Pioneer Suspender Company and A. R. Kneibler, Vice-President, Coopers, Incorporated.

On the board of the B.N.R.F. are also Theophil H. Mueller, President, Julius Kayser & Company; John Wyckoff Mettler, President, Interwoven Stocking Company; Ernest L. Olrich, President, Munsingwear, Inc.; Theodore Friedlander, Vice-President, Phoenix Hosiery Company; and Meyer Kestenbaum, President, Hart Schaffner & Marx.



SAVE ON MAINTENANCE WITH READING CRANES

You save on maintenance costs with Reading Cranes because of the simple, easily accessible unit design. This permits easy removal from the hoist assembly of individual motors, drums or gear housings without disturbing other units or changing their alignment.

Other low maintenance features are: split gear cases to simplify maintenance, long life anti-friction bearings throughout, machined grooves on the drum to save cable wear and replacement. For full information on the long trouble-free performance of Reading Cranes, write for your copy of "The Why and How of Faster Production at Less Cost."

READING CHAIN HOISTS-ELECTRIC HOISTS OVERHEAD TRAVELING CRANES

READING CHAIN & BLOCK CORP. 2113 ADAMS ST., READING, PA.

New Boiler Meter

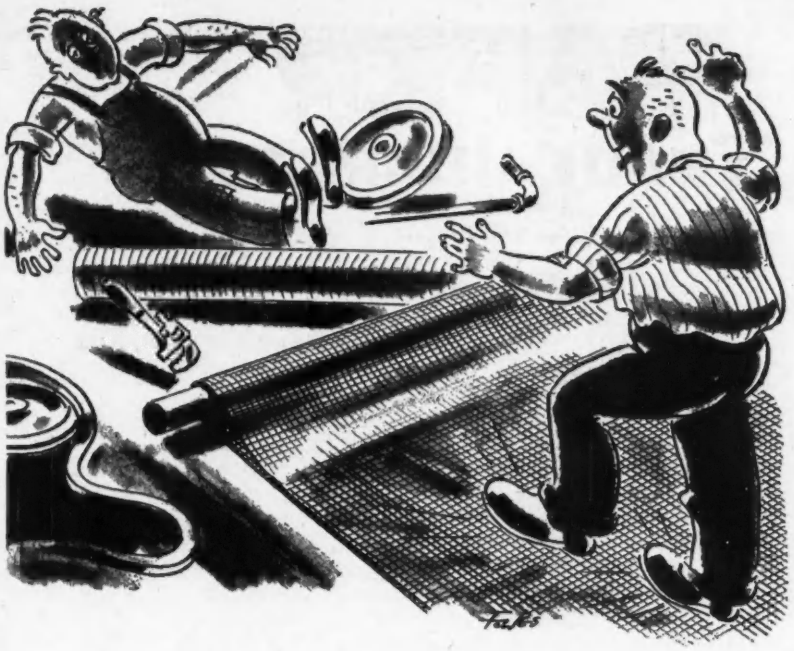
Cochrane Corporation of Philadelphia, manufacturer of flow measuring instruments, steam power plant equipment and specialties, announces a new boiler meter of the steam-flow, air-flow type, known as the Cochrane Boiler Ratio Meter. Several important advantages are claimed. The operator can establish the relation of air supply to fuel supply (measured by steam generated) most favorable to his particular operation by means of an easily adjustable cam in the air flow mechanism. Quick and easy reading is provided by a red indicating pointer operating across a white 10 inch scale, making it unnecessary to examine closely the position of the pens to determine whether the air is excessive or insufficient, as the movement of the pointer is 3 times as great as the differences between the pens. The steam flow mechanism is that of the standard Cochrane Friction-Free Electric Flow Meter, operating on the null balance principle, assuring highest accuracy. The air flow mechanism is based on the highly responsive Hays slack diaphragm, equipped with an electric motor follow-up for ample power. A new bulletin, "Double-Barreled Combustion Guidance," describing the meter, is available.

The B. D. Clipper

Taking its name from the well-known Bulkley, Dunton seal which depicts a full-rigged clipper ship, "The B. D. Clipper," new house organ of the Bulkley, Dunton organization made its debut with the April issue.

Designed primarily for the purpose of keeping in touch with members of the Bulkley, Dunton organization now in the Armed Forces, as well as to bring the news received from servicemen and women to the principals and staff of Bulkley, Dunton, "The B. D. Clipper" is scheduled to appear monthly. At present there are 32 Bulkley, Dunton men and one woman serving with the colors, and the seven offices and representatives of the organization in New York, Chicago, Kalamazoo, New Haven, Springfield, Newark and Los Angeles employ close to 200 people.

Bulkley, Dunton also publishes the Pulp and Paper Bulletin, but while this publication is distributed among members of the pulp and paper industry, "The B. D. Clipper's" circulation is limited to within the organization only.



Oh now let us tell the story
of a bigger boner still,
At the changing of a wire .
in a certain little mill.

All was ready when the tender
said, "Come here, son! Hold this higher!
So a new guy answered, "Yes sir!" and
walked right across the wire.

Well the tender fainted dead away,
the super's hair turned blue,
And the new guy *looped* to grab his coat
as out the door he flew.

Wires are made of scarce materials by skilled craftsmen . . . they deserve extra care now. You'll find that your Cheney Bigelow wartime wires properly handled, will deliver all the fine service you've come to expect of them . . . because we're keeping our skilled craftsmen on the job. Though we're now producing many war items, we're also going right on with development and manufacture of Fourdrinier wires and other mill equipment; with full government approval, for paper, too, is a weapon.

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

No. 118 April 13, 1944 No. 15

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

CHICAGO PROFESSIONAL PAPER GROUP—First Monday of each month except July and August at Chicago, Ill.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION—25th Anniversary Convention, Edgewater Beach Hotel, Chicago, Ill., May 24, 25 and 26.

SIMPLIFIED TAXES NEEDED

The complex system of collecting internal revenue in the form of corporation taxes has been severely criticized and steps are being taken by the government to put into effect a less confusing method of tax collections. In discussing the subject under the title of "Business Taxes Must be Simplified," Col. Robert H. Montgomery, writing in the *Tax Front*, published monthly by the Tax Foundation, 30 Rockefeller plaza, New York, declares that federal tax laws have become so complex and meticulous in detail that few persons really understand them; that the administration of these laws has become a major burden to the taxpayer and the government.

In commenting on the spirit of tax collecting, the writer, who is also the author of Montgomery's Federal Taxes on Corporations, states that: "The certified public accountants feel not only that the complicated tax structure represents a serious problem, but that equally serious are the unsatisfactory aspects which arise in the administration of our tax laws. The root of the difficulty is believed to lie in the spirit of tax collecting which is activated by the idea of 'getting taxes' and producing additional revenue for each individual year. The Treasury has developed a harmful, bureaucratic attitude toward the taxpayer based on such short-run expediency, plus a lack of confidence in the taxpayer's honesty. This, in turn, has resulted (1) in an attempt to obtain as much revenue as possible for the year under review by minute examinations and by frequently resorting to strained, legalistic interpretations rather than looking to the intent of the law; and (2) by resolving all debatable items or doubts against the taxpayer. The ability of field agents is also believed to be rated on the amount of additional rates they assess, with the result that they are over-eager to find such assessments."

In his analysis of items of valuation and accrual, Col. Montgomery states in part: "Examinations and assessments, in the experiences of the certified public accountants, actually rarely result from improper or fraudulent returns. The taxes are rather assessed primarily on items affecting only the assessment of taxes between years. Depreciation changes, capitalization of items charged to repairs, readjustment of bad debts, adjustments of capital stock accruals, proper date of accrual of taxes, amortization of patent and trademark expenses, and inventory adjustments are the items most frequently encountered in this group. A New York certified public accountant stated that 95% of the disputes were the result of depreciation changes and an Illinois certified public accountant added further that 'about 99% of all other adjustments (that is, in addition to depreciation) made by revenue agents were simply switches in years'."

In relation to nuisance assessments Col. Montgomery pointed out that, "The second major category of adjustments reflected in the experience and observations of the certified public accountants is assessments ranging from $100 to $1,000. The points at issue on these assessments are rarely points of principle, but involve petty squabbling over questions of value or technical regulations. The amount is often so small that the taxpayer is led to believe that the adjustment was made merely for the sake of a change to benefit the individual merit rating of the examining agent. If nothing else can be found to adjust, depreciation rates again are most frequently changed. These revisions may be only one or two percent and a Virginia certified public accountant stated he had two instances in which clients had adjustments for exactly one cent to depreciation accruals for the year."

Criticizing the present revenue act, Col. Montgomery said that, "The extreme complexity of the tax laws and the Treasury Department's lack of confidence in the taxpayer's honesty necessitate the employment of a large staff of revenue agents, collectors, investigators, appraisers, engineers and technicians to make extensive examinations. To this must be added litigation costs and refund adjustment expenditures. When it is remembered that most adjustments are made on shifting income items which would equalize over a long period of years in most cases, or are small additional assessments of minor revenue value which are generally outweighed by the cost of making examination, the tremendous economic waste in administering the tax laws is apparent. The taxpayer, on the other had, has the initial expense of preparing his return based on the complicated tax law and requiring numerous detailed schedules and forms.—He has often to revise records, prepare new

comparative operating schedules and endure appeal and litigation costs if he wishes to protest."

In conclusion Col. Montgomery recommends: (1) a long-range taxing policy will have to be adopted which recognizes the equalizing factors in taxation. (2) A reasonable and flexible approach, with a presumption of good faith on the part of the taxpayer, will have to be substituted for the present highly technical and distrustful attitude, and (3) The Code should be amended to provide that the Bureau of Internal Revenue should accept as correct and as the basis of the tax the net income shown by the corporate books which is certified to by an independent certified public accountant, except for fraudulent or grossly negligent returns."

Calls Container Shortage Serious

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 12, 1944—Donald M. Nelson, Chairman of the War Production Board, today made public the following review of container supply, prepared by Harold Boeschenstein, acting director of WPB's Forest Products Bureau:

The problem of producing enough containers to take care of military and essential civilian needs is one of the most serious questions facing the country today. Overseas shipments will be greatly expanded in 1944 as the size of our army overseas increases, and as we help to meet the subsistence needs of the countries we free from enemy occupation. These shipments mean more and more containers. To enormous war requirements, needs of our own civilian population must be added . . . for few types of goods can reach the consumer without aid of a container, and current production of shipping containers is considerably less than total demand. The difficulty is sometimes shortage of factory facilities, more often shortage of raw materials, always shortage of manpower.

Furthermore, overseas shipments both in wooden and fibreboard containers require much heavier and sturdier packing than domestic shipments in order to assure the arrival, in usable condition, of all types of ammunition, materiel and food. The same amount of raw material will make fewer containers in 1944 than in 1943 because of increase of these sturdier types for shipments abroad.

A great deal depends on the success of the Southern pulpwood cutting campaign since most of the woodpulp used in making fibreboard for containers comes from the South. Of equal importance will be the success of wastepaper campaigns, as wastepaper pulp is a necessary ingredient in the manufacture of most types of paperboard for containers.

It is obvious that the maximum reuse should be made of all types of shipping containers. The Containers Division of the War Production Board is at present sponsoring a Container Re-Use Program and giving it national publicity. Meetings have been held throughout the country and wide publicity has been obtained from trade associations, trade publications and through many other channels. The response indicates that a substantial contribution will be made to the solution of the container problem through the maximum reuse of all types of shipping containers, wherever possible, and the practice of economy and conservation in their design and original use.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
February 26	89.2	February 27	91.0
March 4	88.7	March 6	89.7
March 11	89.1	March 13	89.8
March 18	92.2	March 20	88.9
March 25	90.3	March 27	90.6
April 1	*88.0*	April 3	88.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3
1944	90.1	90.6	*90.1*	...	...	...	...

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1943	91.0	88.3	89.6	89.6	82.0	87.8

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date	89.3	66.2	79.7	85.7	89.2	103.6	88.6	*90.2*
Year Average	79.8	71.5	83.4	85.6	97.4	90.4	87.8	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	..	..	..	..	..	..	..	..	..	..

Week ending Feb. 26, 1944—93
Week ending Mar. 4, 1944—95
Week ending Mar. 11, 1944—95
Week ending Mar. 18, 1944—95
Week ending Mar. 25, 1944—97
Week ending April 1, 1944—*93*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Trade Kraft Paper Supply Uncertain

WASHINGTON, D. C., April 12, 1944—Increased military requirements for fiber shipping containers, waterproof papers, map, multi-wall bags and other essential papers made from kraft pulp, will materially reduce the available supply of civilian products such as paper bags and wrapping paper during the second quarter of 1944, members of the Over-All Paper Industry Advisory Committee were told at a recent meeting here, Rex W. Hovey, Director of the Paper Division of the War Production Board, said today.

Although over-all production of paper and paperboard during the first two months of 1944 averaged slightly under the recommended minimum monthly production of 1,406,000 tons, the shortage of pulpwood and pulp, as well as waste paper, makes it necessary for continued conservation, reuse and salvage of all types of paper and paperboard, Mr. Hovey pointed out.

Reiterating the necessity of increasing the cut of pulpwood, which has improved a little, and in maintaining such production at the highest possible level, Harold Boeschenstein, Director of the WPB Forest Products Bureau, called attention to the availability of war prisoners as a solution of the manpower shortage in the woods. He said that industry has the direct responsibility now of utilizing this source of manpower in wood production and salvage operations.

The Forest Products Bureau, he explained, will direct the production of the most essential papers ahead of all others, and it is obvious that there will be little kraft paper for anything except for military and industrial uses. Maintenance of civilian paper supplies can only be assured through increases in production, as it is necessary to meet military demands first, he said. He expressed the hope that the peak of military requirements would soon be reached.

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Many paper manufacturers already know these facts and use TITANOX to pigment all their better-quality white and tinted products. They have learned through experience that the blue-white of TITANOX gives greater *visual* brightness than is produced by yellow-toned pigments. This "eye-appeal" quality is enhanced by maximum opacity, even in light-weight stocks, and by unexcelled, permanent whiteness, and fine printing surface.

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Section of the
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122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Fluorescent Charts*

By Paul A. Smith[1]

Abstract

Fluorescent charts in war called for the annual production of millions of such charts. Multicolored aeronautical charts are produced on offset presses. The first fluorescent charts were printed with fluorescent inks on ordinary chart paper. Latest development is high wet strength fluorescent paper printed with ordinary lithographic inks. Relative advantages of fluorescent chart production methods are outlined. The effect on dark adaptation of vision and the need for maintaining chromatic values are discussed.

Among many war uses of luminescent materials, fluorescent charts and maps have occupied an interesting place. A brief review of the development of fluorescent paper and fluorescent printing for aeronautical charts is the object of this paper. It was not entirely a new problem. Ultraviolet light and its associated phenomena had already undergone numerous practical applications, particularly in Europe and England *(1, 2, 3)* including printing with fluorescent ink. The perfection of the paper, however, is a real tribute to the paper and pigment industries of this country.

Fluorescent charts, tables, and other printed matter are used by Air Force pilots and bombardiers primarily because aircraft are equipped with an ultraviolet light source for other reasons; and this light is invisible if inadvertently directed toward the enemy. Practically all charts are printed on offset lithographic presses, and many millions of charts must be produced annually *(4, 5)*. When the chart makers were confronted with this war requirement, the first and most obvious solution was fluorescent inks applied by an offset press to ordinary white chart paper. Inks were produced which would fluoresce in colors similar to the conventional chart colors seen in daylight. A uniform light-yellow fluorescent base is usually applied to the paper in this process because the uncoated paper appears dark under ultraviolet light, and marginal notes and other printed material must be illuminated.

Initial Studies

Fluorescent illumination for aeronautical charts was studied by the Civil Aeronautics Administration several years before the war as a possible measure to increase safety in night flying. The conclusion of that study, where the element of detection of the light source by hostile observers was absent, was that no outstanding advantage was apparent over normal cockpit lighting methods. The tests carried out at that time had afforded chart makers some opportunity to appraise various methods of applying fluorescence to charts printed in the transparent lithographic colors normally used for this purpose. The results of experiments conducted at that time indicated that a very presentable print could be obtained with fluorescent inks and fluorescent coatings applied by an offset lithographic press.

The question of dark adaptation and night vision was involved. The Navy had already adopted red lights for cockpit use in planes, naval surgeons having concluded from extensive experiments *(6)* that little loss in dark adaptation occurred when objects were viewed under light of longer wave lengths than 600 millimicrons. At low levels of brightness, however, the difference in loss of visual acuity, after viewing a lighted surface in the red as compared to nearly equal brightness in the orange-yellow region, is of less importance than was supposed at first.

The Navy, having already adopted a red light for planes and other craft, requires that all colors used on charts be visible under red lights. The British seem to prefer amber illumination for charts. The chart producers in the United States are therefore required to make charts which are "visible under red, amber, ultraviolet, and daylight," and this note appears on charts which are so prepared. Although red illumination does preserve dark adaptation somewhat better than the yellow-orange light, the difference at low levels of brightness does not seem to be an important factor. The better chromatic values obtainable under the orange-yellow illumination makes it possible to use a wider range of colors on the chart to emphasize certain charted information than does the deep red. This conclusion was reached from comprehensive tests made at the National Bureau of Standards on fluorescent samples, as well as practical tests made by the Army Air Forces.

Methods for Making Fluorescent Charts

A review of the problem revealed that several methods for making fluorescent charts were possible:

1. Printing might be done with fluorescent inks on ordinary chart paper uncoated with fluorescence.
2. A thin coating of invisible fluorescent pigments could be applied to the paper by offset or rotary press or other means, and the charts then printed with ordinary lithographic inks, or with fluorescent inks, or a combination of both.
3. Maps and charts printed in the ordinary manner might be treated after printing with an invisible or transparent fluorescent coating.
4. Fluorescence could be made into the paper by the paper manufacturers in any of several processes.
5. A transparent fluorescent plastic envelope might be provided into which the chart could be slipped when in use.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.
[1] Lieut. Comdr., U. S. Coast and Geodetic Survey, Chief, Aeronautical Chart Branch.

The product obtained by the first three methods is subject to certain disadvantages, namely:

1. They have low resistance to abrasion in use and handling.
2. Erasures on the surface of the chart during use or for purposes such as making hand corrections are impracticable without destruction of fluorescent coating.
3. More skillful operation of presses and careful attention with close inspection of prints for fluorescent color and brilliance as well as daylight inspection are required.
4. Uniformity of fluorescent color and brilliance is dependent upon individual operation. It would be especially hard to maintain on field presses.
5. Lower press speeds are required.
6. Special inks are necessary.

Advantages of fluorescent application to ordinary chart paper are:

1. No special paper is required, thus making fluorescent printing practicable with any available stocks.
2. Under ultraviolet a slightly greater range in color contrasts and values is possible.

It was found that any fluorescent overcoating of satisfactory stability and durability caused the chart to have a dull appearance. The transparent, plastic envelope required another piece of equipment for planes and pilot, and was therefore undesirable if the properties could be manufactured into the chart.

An ideal fluorescent paper offered the greatest advantages if it could be perfected because in this event it could be used with the least change in the ordinary chart printing processes. The nearest available approach to the ideal at the time was a thin coating of fluorescence applied to the conventional chart paper before printing, with the possible additional use of fluorescent inks as necessary. This method was, therefore, put into immediate use by the War Department. A fluorescent paper which would produce the desired effect with ordinary lithographic inks was obviously an attractive possibility. Inquiries from experts at the Government Printing Office, the National Museum, National Bureau of Standards, and the Geophysical Laboratory of the Carnegie Institution of Washington indicated that a satisfactory fluorescent paper might be produced in the quantities necessary within a few weeks. After several conferences with representatives of a number of paper manufacturers and the War Production Board, satisfactory preliminary samples of coated paper were produced by the industry and the fluorescent paper was put into use by the Coast and Geodetic Survey. Because of a limitation on quantities of fluorescent pigments, the coated paper seemed to be the most practicable. It had certain disadvantages, the main one being that it was to a slight degree subject to the same weakness of the printed-on fluorescence; that is, the fluorescence could be scraped off if hand corrections by knife erasures were made.

Present Development

A new map paper, having unusual properties of wet strength, was under development for the War Department about the same time as the fluorescent paper was being tested. It was obviously desirable to use the same base stock specifications for the fluorescent paper as for the new chart paper without fluorescence. Preliminary mill runs were promising although costs were naturally higher than coated paper. Eventually, however, a satisfactory sheet was produced on identical specifications to the new high wet strength paper *(7)*. Fluorescent brilliance and color were satisfactory to the Air Forces and this paper is now standard for Air Forces fluorescent charts.

As stated by Dr. Stutz *(8)*, it is possible to obtain almost any fluorescent color desired with stable inorganic pigments. It is therefore possible to match daylight chart colors with fluorescent colors if the additional fluorescent brilliance is required. So far, however, the fluorescent paper seems to be satisfactory, and the additional use of fluorescent inks has not been needed. Ordinary lithographic inks used for chart printing are nearly transparent. When fluorescent pigments are added, the ink becomes slightly more opaque.

Specifications *(9)* for the fluorescent color and brilliance are, in the case of the chart paper, based upon National Bureau of Standards recommendations. Briefly, they require that the fluorescent brightness shall be 200 microlamberts, and fluorescent chromaticity coordinates $x = 0.514$, $y = 0.478$ when the density of radiant flux of wave length 365 mu is 3.2 microwatts per sq. cm. (NBS Test No. IV—3/43P—75/43). A secondary standard consisting of a paper sample meeting the above specifications is generally supplied to the manufacturer as the most practicable control during production.

Since aeronautical charts are generally used in daylight or under ordinary artificial light, care is taken that the addition of fluorescent properties does not impair their utility and legibility in daylight or white light.

A word may also be said about other fluorescent documents used by pilots and aircraft personnel under ultraviolet light. Tables, navigational data, and other printed matter have been produced by the Government Printing Office and others with fluorescent ink on black paper; by offset printing with a reversed plate on fluorescent paper using black ink; and by a process whereby letters and figures are printed with a letter press on black material.

At present, fluorescent charts are produced solely for war uses. The simplest and most satisfactory method yet found is the use of the fluorescent paper with ordinary printing inks and ordinary printing processes.

Fluorescent charts and other articles produced in fluorescence are spectacular in appearance. Obviously, future advances in this field may be expected as the phenomenon is applied to more and more utilitarian requirements, and the basic materials become more plentiful.

Purposely nothing has been said about the details of the methods used in applying fluorescence to the paper or to the inks for chart printing. These processes represent in most cases ingenious work on the part of technical staffs and laboratories of American industry. It is therefore believed that a discussion of the actual processes should be conducted by representatives of the organizations involved.

Literature Cited

1. Danckwortt, Prof.-Dr. P. W., "Lumineszenz-analyse im filtrierten ultravioleten licht," 3rd ed., Akademische Verlagsgesellschaft m.b.z. Leipsig, 1934.
2. Radley, J. A. and Grant, Julius: "Fluorescence analysis in ultraviolet light," 2nd ed., Van Nostrand Co., New York, 1935.
3. Hendrich, Walter G., Personal communication, 1944.
4. Smith, Paul A., *The Military Engineer*, July, 1943, pp. 357-361.
5. Donoghue, Lt. Col. John A., *The Military Engineer*, Sept., 1942, pp. 427-429.
6. Color vision and night vision involve complex physiological and psychophysical factors. For additional information the reader is referred to: Liljencrantz, Swanson, and Carson, U.S.N. M.C., "The use of the eyes at night," *U. S. Naval Institute Proceedings*, June, 1942, pp. 802-810; and Vavilov, S. I. and Timofeeva, T. V., "Visual measurements of quantum fluctuations," *Acad. of Sci. of U.S.S.R., Jour. of Physics*, 7, No. 1, pp. 1-17.
7. War Department Specifications No. 43-139.
8. Stutz, G. F. A., *Paper Trade J.* 118, No. 9:34-36 (Mar. 3, 1944).
9. Coast and Geodetic Survey Specifications dated November 3, 1943.

Sodium Peroxide Bleaching of Mechanical Pulps*

Control of Metal Catalysts in the Bleaching Operation

By J. S. Reichert[1], D. J. Campbell[1], and R. T. Mills[1]

Abstract

Some of the heavy metals, including copper, iron, and manganese, have an accelerating effect on peroxide decomposition; this effect is catalytic and varies with the pH of the peroxide solutions. Deactivation of these metal catalysts can be accomplished with stabilizers, such as sodium silicate and magnesium salts; they inhibit peroxide decomposition within pH ranges peculiar to each stabilizer.

Iron, copper, and manganese are present in pulpwoods and in mill waters. Depending upon their physical condition and their chemical composition, these catalysts may exist in an active or an inactive form. The catalytic metals present in pulpwood are comparatively inactive while those present in mill waters are more likely to have an accelerating effect on the decomposition of peroxide solutions during the bleaching operation.

Magnesium sulphate and sodium silicate inhibit the catalytic effects of small amounts of iron, copper, and manganese on the decomposition of peroxide in pulp bleaching solutions. However, under adverse conditions catalytic metals may be encountered in the sodium peroxide bleaching system in quantities too large to be completely controlled by the best deactivators.

A description of the sodium peroxide process for bleaching mechanical pulps and a report on the effect of variations in the bleaching procedure are given in previous publications (*5, 6*). The properties of sodium peroxide bleached mechanical pulp and its use in paper manufacture are described by Beeman (*1*). The printing properties of bleached groundwood are described by Rhodes (*8*).

There are many references in the scientific literature to the catalytic effects of heavy metals on the decomposition of peroxide solutions and to the effectiveness of stabilizers for inhibiting peroxide decomposition. Machu (*3*) and Kausch (*2*) have published comprehensive summaries of this information. However, there is little published information on the effect of pH on the activity of catalysts and their deactivation.

This paper describes the catalytic effects of copper, manganese, and iron on the rate of decomposition of peroxide solutions and suggests methods for deactivating these catalysts in the sodium peroxide bleaching of mechanical pulps.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

[1] Peroxygen Products Division, Electrochemicals Department, E. I. du Pont de Nemours & Co., Inc., Niagara Falls, N. Y.

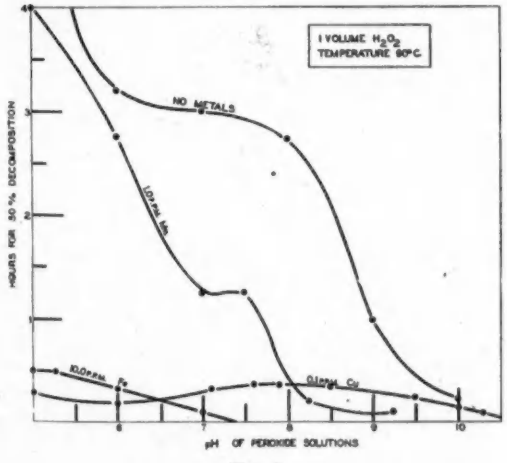

FIG. 1
Effect of Metal Catalysts on the Stability of Peroxide Solutions

Procedure

CHEMICALS

The following chemicals were used in this investigation: (1) sodium peroxide, containing about 20% active oxygen; (2) hydrogen peroxide containing about 13% active oxygen; (3) sodium silicate, water white, 41.5° Bé, containing 29% SiO_2 and 8.9% Na_2O; (4) caustic soda, U.S.P., 95% NaOH; (5) sulphuric acid, C.P., sp. gr. 1.84; and (6) magnesium sulphate, $MgSO_4 \cdot 7H_2O$, meeting A.C.S. Specifications.

Peroxide Stability Tests in the Absence of Pulp

The effects of pH, catalysts, and stabilizers on peroxide stability were studied first with alkaline solutions of hydrogen peroxide in the absence of pulp. One volume peroxide solutions (1.0 ml. of a one volume peroxide solution at 20° C. liberates 1.0 cc. oxygen measured at 0° C. and 760 mm. when the peroxide is entirely decomposed) were prepared by adding 10 ml. of "Albone" (100 volume hydrogen peroxide) to approximately 975 ml, of the solution to be tested. After pH adjustments were made with caustic soda, sulphuric acid, or sodium silicate, the solution was diluted to exactly 1000 ml. and a final pH reading was taken. This stock solution is equivalent to a comparable solution prepared from sodium peroxide. The catalysts were added in the following forms: Copper as $CuSO_4 \cdot 5H_2O$, manganese as $MnSO_4 \cdot 4H_2O$, and iron as $FeSO_4 \cdot 7H_2O$.

Portions of this solution (about 200 ml.) were stored at 180 to 195° F. in clean Pyrex Kjeldahl flasks equipped with Pyrex condensers. Samples taken at intervals until 50% decomposition was reached, were acidified and titrated with a standard permanganate solution. The results were plotted as curves shown in Figs. 1, 2, and 3.

These studies of the effects of pH, catalysts, and stabilizers on peroxide stability were next confirmed under conditions more nearly like those prevailing in the sodium peroxide bleaching of mechanical pulps.

Solutions of the desired peroxide concentration were prepared from hydrogen peroxide or from "Solozone" (sodium peroxide); 10 ml. of hydrogen peroxide or 7.2 grams sodium peroxide per 1000 ml. of solution constitutes a one volume peroxide solution. The tests were carried out in Pyrex flasks at 80 to 90° F. Samples were removed at intervals and titrated with standard permanganate solution until 50% decomposition was reached. The results were plotted as curves shown in Fig. 4 and 5.

Peroxide Stability Tests in the Presence of Pulp

In studying the effects of pH, catalysts, and stabilizers on peroxide stability in the presence of pulp, a sodium peroxide stock solution was prepared as follows:—50 grams sodium silicate, 20 grams sodium peroxide, and 17 grams sulphuric acid were added to 950 ml. of water with vigorous agitation, and the solution was diluted to 1000 ml. A fresh groundwood slurry was concentrated to about 5.5% consistency. The amount of slurry to provide 50 grams moisture-free ground wood was weighed out. Then 50 ml. of the peroxide solution (2 grams Na_2O_2 per 100 grams moisture-free groundwood), along with the necessary amount of water to bring the bleached slurry to a 5.0% consistency, was added with good agitation. The treated slurries were stored at 82° F. in covered glass beakers and representative samples were taken at intervals. Liquor squeezed from the pulp samples through cloth was titrated for peroxide with standard thiosulphate solution, using iodide-starch indicator and ammonium molybdate catlayst to accelerate the titration (7). The results are plotted as curves shown in Fig. 6.

Catalytic Decomposition of Peroxide Solutions

Figure 1 shows the accelerating effect of traces of copper, manganese, and iron on the decomposition of peroxide solutions over the pH range 5.0 to 10.5. At pH values of 8 or higher, 0.1 p.p.m. copper is approximately equal in catalytic activity to 1.0 p.p.m. manganese or 10 p.p.m. iron. In this pH range and with these quantities of catalysts 50% decomposition of the peroxide solutions is reached in 15 minutes or less.

Stabilizing Effect of Magnesium Sulphate and Sodium Silicate

Deactivation of metal catalysts can be accomplished

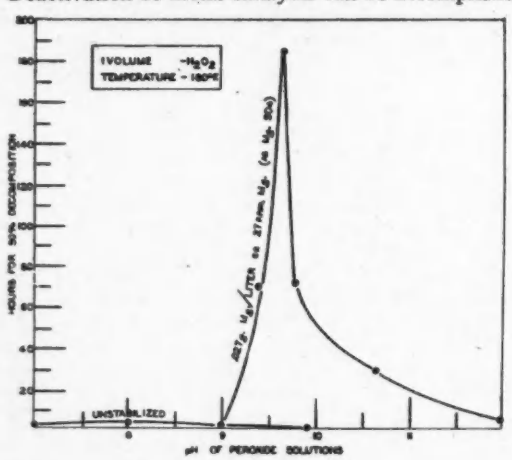

FIG. 2

Effect of Magnesium Sulphate on the Stability of Peroxide Solutions

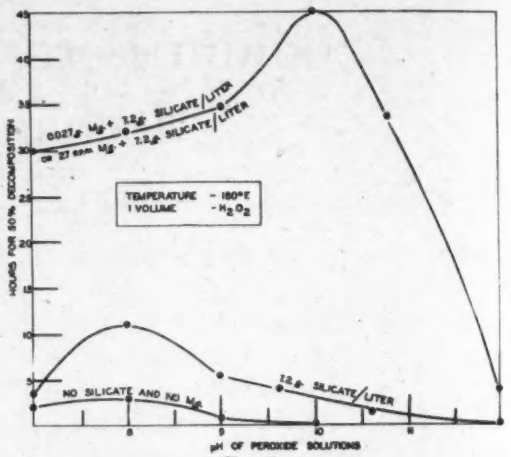

FIG. 3

Effects of Magnesium Sulphate and Sodium Silicate on the Stability of Peroxide Solutions

with stabilizers which inhibit peroxide decomposition within pH ranges peculiar to each stabilizer. As shown in Fig. 2 magnesium sulphate has a stabilizing effect over the pH range 9.0 to 12.0; at pH 9.7 this effect reaches a high peak. Sodium silicate also has a small stabilizing effect. However, when sodium silicate and magnesium sulphate are used together the peroxide is stabilized over a wide pH range and the stabilizing action is especially effective in the higher pH range which prevails in the sodium peroxide bleaching of mechanical pulps. These results are shown in Fig. 3. With no stabilizer at pH 10 and 180° F. the peroxide solution was 50% decomposed in approximately 15 minutes. With the addition of 7.2 grams sodium silicate per liter, 50% decomposition was reached in 3 hours; with the further addition of 0.027 grams per liter (27 p.p.m.) magnesium as magnesium sulphate, it took about 45 hours for 50% decomposition.

Catalytic Metals in Pulpwood and in Mill Waters

Copper, iron, and manganese are present in pulpwoods and in mill waters. Miller (4) reports the presence of 0.01 to 48 p.p.m. iron and traces to 8 p.p.m. manganese in raw mill waters; his data, which were accumulated from water analysis reports from

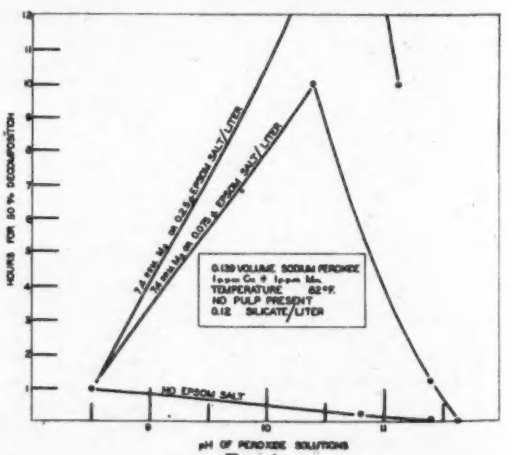

FIG. 4

Deactivation of Metal Catalysts in the Bleaching Process—Variations in pH and Amount of Deactivator

42 mills producing fine papers, also show the presence of 0.06 to 58 p.p.m. iron and traces to 7 p.p.m. manganese in process waters. In an analyses of water from several mills, groundwood white water systems were found to contain a minimum of 0.2 p.p.m. manganese and 1.6 p.p.m. iron. An analyses of groundwood slurries show that they may contain 0.7 to 54 p.p.m. copper, 0.4 to 64 p.p.m. manganese, and 8 to 94 p.p.m. iron on the weight of moisture-free groundwood. Analyses of sawdust from several groundwood mills show the presence of 5 to 90 p.p.m. copper, 20 to 45 p.p.m. manganese, and 11 to 58 p.p.m. iron. These analyses indicate that, in many instances, peroxide stabilizers may be needed for controlling decomposition catalysts in the groundwood bleaching process.

Deactivation of Metal Catalysts

Figure 4 shows the effect of magnesium sulphate (Epsom salt) as a catalyst deactivator in peroxide solutions under the conditions which prevail in sodium peroxide bleaching of mechanical pulps. When no Epsom salt was added, the peroxide solution containing 1 p.p.m. copper and 1 p.p.m. manganese was 50% decomposed in 10 minutes to 1 hour in the pH range of 11.5 to 8.6. Under the same conditions, the addition of 0.075 gram Epsom salt per liter (7.5 p.p.m. Mg) caused a marked increase in the time for 50% decomposition, e.g., from 12 minutes to 10 hours at pH 10.5. With the addition of 0.25 grams Epsom salt per liter (25 p.p.m. Mg) the peroxide became even more stable; the stabilizing effect was apparent over a wider pH range and was especially marked in the range 10.5 to 11.5.

Figure 5 shows the effect of adding increased quantities of Epsom salt to deactivate increasing quantities of copper and manganese. Without the addition of Epsom salt a peroxide solution containing 1 p.p.m. copper and 1 p.p.m. manganese was 50% decomposed in 10 minutes, and when the copper and manganese content was increased to 5 p.p.m. each, decomposition took place before the peroxide solution could be titrated. Figure 5 shows that Epsom salt is a very effective deactivator when copper and manganese are present to the extent of 1 p.p.m. each. However, when the copper and manganese content was increased to 5 p.p.m. each, effective stabilization was not obtained

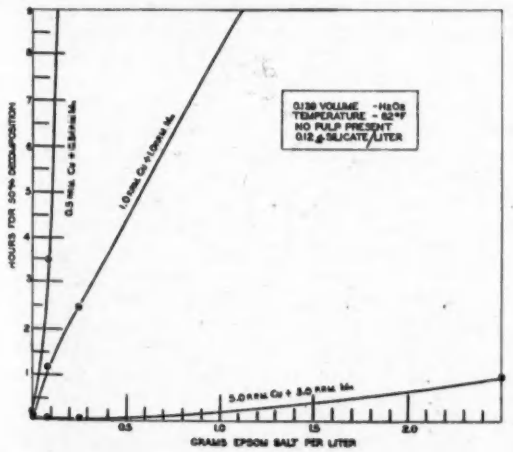
0.139 VOLUME -H2O2
TEMPERATURE - 62°F
NO PULP PRESENT
0.12 g SILICATE/LITER
1.0 p.p.m. Cu + 1.0 p.p.m. Mn
5.0 p.p.m. Cu + 5.0 p.p.m. Mn
HOURS FOR 50% DECOMPOSITION
GRAMS EPSOM SALT PER LITER

FIG. 5

Deactivation of Metal Catalysts in Peroxide Solutions Under Groundwood Bleaching Conditions—Variations in Amounts of Catalysts and Deactivator

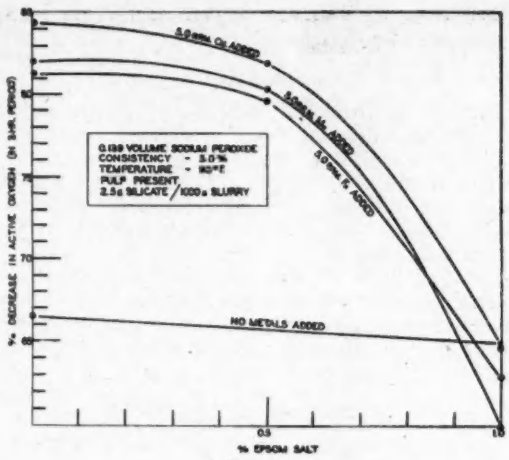

FIG. 6

Deactivation of Metal Catalysts in the Groundwood Bleaching Process

with a substantial quantity of Epsom salt, i.e., 2.5 grams per liter (250 p.p.m. Mg). However, as will be shown in Fig. 6 the tolerance for copper, manganese, and iron becomes greater in the presence of wood pulp.

Figure 6 shows how the catalytic action of copper, manganese and iron on the decomposition of the peroxide in groundwood slurries is inhibited by varying amounts of Epsom salt. This figure also indicates a difference between the activity of catalytic metals present in the pulp and the activity of catalytic metals added to the pulp slurry. Without the addition of metal catalysts no appreciable increase in the stability of the peroxide solution resulted from the addition of 0.5 gram Epsom salt to 1000 gram of slurry (1% of Epsom salt on the weight of moisture-free pulp). The metals normally present in the wood were therefore apparently already in an inactive form, i.e., tied up as complexes with organic components of the pulp wood or deactivated by stabilizing compounds of magnesium and calcium, also known from analyses to be present in pulp wood. However, addition of 5 p.p.m. of iron, manganese, or copper caused an appreciable increase in the rate of peroxide decomposition; this was overcome by the addition of Epsom salt. Heavy metals present as soluble salts in mill waters would be expected to have an adverse effect on peroxide stability similar to effects shown by addition of copper sulphate, manganese sulphate, and ferrous sulphate to the pulp slurry.

The data shown in Fig. 6, indicate that the quantities of metal catalysts normally encountered in groundwood systems may be controlled by the addition of Epsom salt. These laboratory indications have been confirmed in mill operations. When water containing metal catalysts was used in preparing the bleaching solution, accelerated peroxide decomposition took place; however, the catalytic metals were completely deactivated by adding 1 to 2 pounds Epsom salt per 1000 gallons of water. Also when catalytic metals caused accelerated peroxide decomposition in peroxide-treated groundwood, this catalytic effect was controlled by treating the pulp with a small amount of Epsom salt (10 to 15 pounds per ton of pulp) prior to peroxide bleaching. When excessive quantities of metal catalysts are encountered in mill waters, it will very likely be necessary to eliminate or de-

crease them by filtration if satisfactory bleaching results are to be obtained.

Summary

Iron, copper, and manganese are active catalysts for peroxide decomposition. Analytical data show that these metals are present in varying amounts in pulpwood and in mill waters. It is indicated that the catalytic metals in pulpwood are present in a relatively inactive form while those present in mill waters are likely to be more active.

Metal catalysts are deactivated by stabilizers, such as sodium silicate and magnesium sulphate. Unless excessive quantites of the metal catalysts are present during the bleaching operations, they can be controlled with these stabilizers.

Acknowledgement

We wish to express our sincere appreciation to the pulp and paper firms who supplied the samples of sawdust, pulp, and mill waters for developing the information presented in this paper.

Literature Cited

1. Beeman, L., "Properties of Sodium Perixode Bleached Mechanical Pulp and Its Applications in Paper Manufacture." *Paper Trade J.* (in press).

2. Kausch, O., "Das Wassertoffperoxyd." Wilhelm Knapp, Halle (Saale) 1938.

3. Machu, W., "Das Wassertoffperoxyd Und Die Perverbindungen." Julius Springer, Vienna, 1937.

4. Miller, L. B., *Paper Trade J.* 117, No. 27:25-27, Dec. 30, 1943.

5. Reichert, J. S., "Sodium Peroxide Bleaching of Mechanical Pulp—General Description of the Process." *Paper Trade J.* (in press).

6. Reichert, J. S., Campbell, D. J., and Secord, R. A., "Sodium Peroxide Bleaching of Mechanical Pulps—Effect of Varying the Bleaching Conditions." *Paper Trade J.* (in press).

7. Reichert, J. S., McNeight, S. A., and Rudel, H. W. *Ind. Eng. Chem., Anal. Ed.*, 11, No. 4 (Apr. 15, 1939).

8. Rhodes, K., "Printing Characteristics of Bleached Groundwood." *Paper Trade J.* (in press).

Resins for Paper Base Laminates*

By N. D. Hanson[1] and Perry Wilson[2]

Abstract

The types of resins are discussed briefly with the general qualifications of the varied groups and their usage requirements being given. Included are plasticized, fast curing, chemical resistant, and decorative varnishes, laminates, and low-pressure resins. The paper used is also given some consideration.

Some thirty-four years ago when phenol-formaldehyde resins were first introduced, one of the earliest commercial applications was their use for laminated materials. A major portion of this work utilized paper as a base or carrier of the resin. At that time the resins were of two general types, those of the one-step and the two-step variety.

Types of Resins

One-step resins are those which are self sufficient in combining methylene groups or radicals. Two-step resins require added methylene groups (generally hexamethylenetetramine) to promote hardening or polymerization. In the beginning both types were used in about equal quantities. As the laminating industry progressed the one-step type became the most widely used, however the two-step type retains a definite place and use in this industry.

These resins can be best described probably as "hard resins", due to their rigid, dense, homogenous structure when molded into the finished laminated form. These laminated products immediately found their proper place in the industrial world, due to their electrical and mechanical properties. Limitations were naturally present with a product of this nature. Most of its usefulness presented itself in the form of flat sheet stock. New uses for resins and varnishes possessing definite mechanical, chemical, electrical, and decorative characteristics resulted from the cooperation of the laminated, molding, and resin manufacturing industries. These uses have contributed to a healthy rate of growth in the resin varnish industry. At present our company alone manufactures ninety different resins for the laminating industry. All of these can be used for paper impregnation but it is necessary to know the properties desired and the equipment available in order to select the proper combination of resin and paper for the job.

It is not practical to attempt to go into detail on any specific resin or varnish, therefore, for simplification these materials will be discussed by groups. However, it is in order to discuss the type of paper desirable for laminating purposes, the control of the resin varnish both before and during the paper treatment, and how some of these controls are made.

Application Factors

The pH of a paper may render it or a resin unsuitable for many applications. An alkaline paper, for instance, speeds up the cure of the resin. An acid pH is also to be avoided because within certain limits, with some resins, it may alter the cure to an extent which causes delamination or poor strength values. It is more practical to use neutral papers and obtain a desired pH by adjusting the resin.

As for the varnishes used, the prime factor to be considered is its storage before impregnation. The one-step varnishes change with age. Usually this type will double in viscosity at 80° F. in 8 weeks time. This increase in viscosity is due to polymer formation (larger molecules) and results in lower penetration. Storing the varnish at 40 to 50° F. greatly extends its useful life and such practice is highly recommended, and is widely used.

The extent of drying and the drying temperature used in processing resin treated papers must be carefully controlled. Each type of thermosetting phenol resin has a critical drying temperature and a critical time at which it may be exposed to that temperature. To control this the treated paper must be checked for plasticity and volatile matter contents at regular intervals during the treating cycle.

The time required for a resin to penetrate a paper

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[1] Development Laboratories, Bakelite Corp., Bloomfield, N. J.
[2] Service Engineer, Bakelite Corp.

and the amount of resin absorbed is one of the most important factors in selecting a given paper or varnish for any specific application. This test can be conveniently made with a William's oil "Penetrometer" or similar instrument. Laminating varnish is substituted for oil in the test cup. The paper in question is weighed and inserted into the clamp over the cup. After inverting the cup and determining the time required for the varnish to penetrate through the sheet, the paper is taken from the cup and excess surface resin removed with a knife or spatula. This sheet is then dried for 10 minutes at 260° F. and reweighed to determine the amount of resin absorbed. Various dilutions must be tested to determine the effect of added thinners. This apparatus is also helpful in noting the effect of "wild" patches or lumps of fiber in the sheet during impregnation. The "Penetrometer" in reality is a midget treating machine which makes possible a rapid classification of varnishes and papers.

The development of resins paralleled very closely the trend of industry through the years. For instance the hard resins, previously mentioned, appeared about the time the electrical industry needed high dielectrics of good strength. Laminates in the form of sheets, rods, and tubes found immediate demand due to their excellent insulating properties. It is interesting to note that 70% of all these early laminates contained a paper base.

Varnishes

Plasticized Varnishes

The need for a more flexible type material was ever increasing. The resin chemist in order to comply with this new requirement produced plasticized phenol varnishes, which yielded tough flexible sheets capable of being punched and sheared. These materials, however, were free from "cold flow" when fastened between metal washers or rivets. With this development came the discovery that far better electrical characteristics were obtained. Closer cooperation between the manufacturers of paper and of resin working with the laminators further produced improved mechanical properties.

Fast Curing Varnishes

With the advancement of machinery, the demand for molded shapes became more and more apparent. Expensive metal molds were needed in manufacturing most of these parts. This expense, coupled with slow curing resins, made it difficult for the laminated industry to compete with other materials economically. In coping with this situation faster curing resins were developed. These resins reduced the molding cycle to meet competition, but at the same time high standards of quality were retained.

Odorless and Chemical-Resistant Varnishes

The electric household refrigerator and chemical processing equipment are examples of how new and more rigid demands were placed on the resin and laminating industry. Both odorless and chemical-resistant laminates were nedded. In due course of time both types of the materials were on the market in the form of paper base laminates. They enjoyed a healthy rate of growth up until the war started, when the base materials were allocated to more strategic applications.

Decorative Varnishes

With modernistic housing fixtures and furniture there came accelerated demands for laminating materials. Light colored phenol resins were made available for translucent laminates, which are used for signs, lighting fixtures, maps, charts, and in furniture and building interiors. In processing this material to preserve the color it was found that the resin should never come in contact with iron pans, rods, rolls, or plates. Stainless steel, aluminum, or plastic laminates, however, proved satisfactory.

The phenolic materials, as far as color retention is concerned, are suitable for many decorative applications. Where white and pastel colors demand better color retention, the ureau and melamine varnishes may be used. On most all this work, high wet strength absorbent paper with good fiber formation is essential for best results.

Plastics

There are two broad classes of plastics: thermo-

TABLE I.—RELATIVE PENETRATION OF VARIOUS RESINS *

Treating Resins	Paper: 7-mil Translucent Rag	7-mil White Pigmented	High Tensile Mitscherlich	10-mil Alpha Filler	40-mil Sulphite Pulp	Solids Contents %	Viscosity K.V.
BR-15100 (water sol.)	1—2—54	5—30—50	2—20—35	4—20—54	35—135—51	72	150
BR-15100 + 5% alcohol	1—1—54	5—20—45	1—16—29	2—7—50	25—75—40		97
BR-15100 + 20% alcohol	1—1—50	1—10—35	1—5—26	1—2—44	5—15—35		51
BV-16887 (low pressure)	4—30—42	16—80—37	5—60—29	17—120—41	330—980—35	72	1633
BV-16887 + 10% alcohol	1—7—39	5—17—28	2—30—19	5—20—38	45—185—30		418
BV-16887 + 20% alcohol	1—1—40	3—11—26	1—7—12	1—5—33	15—46—24		110
BV-1112 (general-purpose, fresh sample)							
BV-1112 (general-purpose, aged sample)	6—120—35	41—250—28	15—180—9	27—300—40	720—1200—15	62	3600
BV-1112 + 5% alcohol	4—60—38	25—190—25	13—130—16	20—195—36	330—1000—22		1780
BV-1112 + 20% alcohol	1—7—22	10—30—20	4—55—8	5—23—32	75—230—20		385
BV-914 (punching stock)	2—7—50	7—35—39	6—40—33	10—33—43	85—335—24	70	637
BV-914 + 10% alcohol	1—3—54	5—10—33	2—25—33	2—13—41	40—125—33		216
BV-914 + 30% alcohol	0—1—42	1—15—29	1—38—21	1—4—35	7—31—28		72
XVU-16556 (flex. nameplate)	2—13—36	25—50—30	3—30—18	7—33—32	60—300—25	53	435
XVU-16556 + 5% alcohol	1—6—36	15—40—30	3—25—18	5—21—32	50—180—28		268
XVU-16556 + 20% alcohol	1—2—37	4—15—30	1—8—12	1—5—27	16—45—22		85
XVU-15276 (modified urea)	1—1—53	1—4—51	1—4—39	1—2—59	6—11—42	52	27
XVU-15276 + 5% alcohol	1—1—57	1—4—49	1—4—44	1—2—57	6—11—42		24
XVU-15276 + 20% alcohol	1—1—53	1—3—42	1—3—27	1—1—47	2—7—34		18
1617-76 (melamine)	1—2—42	3—30—41	2—197—38	3—45—52	725—1154—43	50	50
1617-76 + 15% H_2O	1—1—47	2—6—37	1—30—38	1—2—43	7—26—34		29
Vinylite AYAT	1—8—27	10—43—23	2—27—21	6—20—24	60—132—17	20	
Ethyl Cellulose—7 sec.	1—1—16	5—30—6	1—13—7	1—5—11	15—40—7	20	
Vinylite VYHH	1—1—14	1—1—16	1—1—12	1—1—16	5—25—17	10	

* Explanation: 1—2—54: 1 = Time in seconds for first indication of penetration.
2 = Time for total impregnation.
54 = Per cent resin absorbed (dry weight).

setting materials and the thermoplastics. The thermosetting plastics polymerize or set permanently upon the application of heat and pressure. They become insoluble and infusible. The thermoplastics soften upon the application of heat and harden upon cooling. They can be resoftened again and again upon being heated.

It is now possible to combine thermoplastic and thermosetting resins to obtain modified physical and chemical properties, although only the most absorbent papers are of value here. In some cases the sheet may be impregnated with a thermoplastic resin and then bonded with a thermosetting resin. Calendered pigmented sheets of certain thermoplastic resins may be molded to thermosetting paper laminated core materials to produce highly decorative surface sheets. By the same token resins are available for bonding metal to thermosetting core stock in the molding operation.

Beater Process Laminates

Phenol resins of either the one-step or two-step variety have been developed, which, when suspended in water, may be added to the pulp in the beater to produce stocks capable of being concentrated on a paper machine or on forming molds. When a wet machine is used as the dewatering mechanism the plies are combined on the making roll to form a resin fiber board, which is preferably dried in a loft at low temperatures to preserve the plastic flow of the resin. Preforms may be sheared or punched from the boards to accomodate the shape of molds in the production of fast curing, high-impact molded objects.

Low-Pressure Resins

The increase in production brought forward by the present war opened up one of the most interesting of all laminated resin developments, this being the introduction of low molding pressure resins to the laminated field.

With high pressure equipment already overtaxed shortly after the war started and the demands for laminated materials growing by leaps and bounds, it became imperative to use resins requiring low pressures. These new materials can be molded in inexpensive and readily obtainable molds made of wood, plaster of Paris or cast metal molds and utilizing rubber bag technics. Thus the high strength steel molds were not necessary. At the same time much larger shapes can easily be made by the low pressure molding-laminating process.

These resins were not developed as easily as one might think. Actually they had been a research project for a good many years. Today, low pressure laminates are playing an ever increasing part in the war effort.

Statistics

In conclusion the following statistics may be of interest. The laminated industry turns out about 70,000,000 pounds of finished stock per year. Eighty per cent of this material prior to the war used paper as a base. In terms of paper this represents an annual consumption of 28,000,000 pounds. To the paper industry this may appear insignificant. Nevertheless, the laminated plastics industry is still in infancy but it is definitely going to grow. That growth, however, will be accelerated by closer cooperation between the paper industry, the synthetic resin laboratories and the laminators.

TAPPI Notes

B. Franklin Stahl, formerly of the Terre Haute Paper Company is now a Lieutenant (j.g.) in the Navy.

Claude B. Christiansen, formerly of the Cellulose Products Laboratory is now shift superintendent, St. Regis Paper Company, Tacoma, Wash.

Karl E. Weikel, formerly of the U. S. Printing and Lithograph Company is now in the Merchant Marine as a Second Mate.

Josiah Wood, formerly of Price Bros. & Co., Ltd., is now sales engineer, Pulp and Paper Filter Division, E. Long, Ltd.

J. Edward Doyle, formerly of the Chesapeake Camp Corporation is now chemist for the Curtis Paper Company, Newark, Del.

Walter F. Reynolds, formerly of the Dixie-Vortex Company is now chemist, Paper Chemicals Laboratory, American Cyanamid Company, Stamford, Conn.

Raymond C. Bullock is now pulp mill superintendent for the Ecusta Paper Corporation, Pisgah Forest, N. C.

Peter Parent, formerly of Rayonier, Inc., is now a Cell Room Operator, Pennsylvania Salt Manufacturing Company, Tacoma, Wash.

The next meeting of the Chicago Professional Paper Club will meet in Chicago on May 1st. Otto Kress, Technical Director of the Institute of Paper Chemistry will talk on Fundamentals of Pulping.

John J. Priest, formerly with the Albemarle Paper Manufacturing Company is now research chemist with the Virginia-Carolina Chemical Company, Richmond, Va.

The New England Section of TAPPI will meet jointly with the Connecticut Valley Superintendents Division at the Hotel Kimball, Springfield, Mass. at 6:30 P.M., Friday, April 21st. S. G. Blankinship, Port Royal Pulp & Paper Co., Johannes Westergaard, Castle & Overton, Inc., and Vance P. Edwardes will discuss Sulphite Pulping.

WPB Requests Newsprint Data

[From our regular correspondent]

Washington, D. C., April 12, 1944—Newspaper publishers, who have not filed their monthly reports on newsprint ordered for January, February and March, must do so immediately, Arthur R. Treanor, Director of the Printing and Publishing Division of the War Production Board, said today.

"Otherwise, the Division has no means of ascertaining that total newsprint orders are in balance with available supply," he explained.

To date, less than half of the newspaper publishers required to file duplicate copies of their monthly orders for newsprint with the Division have done so, and some 460 reports are outstanding, making it impossible to determine the total monthly orders.

Under an agreement, approved by the Newspaper Publishers Industry Advisory Committee some time ago, each daily newspaper using more than 25 tons of newsprint per quarter is required to file copies of all orders each month whether placed with Canadian or United States newsprint manufacturers.

Mr. Treanor said he is especially desirous of having all data on newsprint orders in hand for the next meeting of the Newspaper Publishers Industry Advisory Committee scheduled for Thursday, April 20, 1944.

Power Load on Calenders of Newsprint Machines*

By W. G. MacNaughton[1]

Abstract

Data are given of the power required to drive the calenders of twenty newsprint machines of varied speeds. The weight of the calender rolls of these machines is also varied. Data are given showing the effect on the power load of the driers, calenders, and reel by the draws between these sections.

In a series of studies on the operation of newsprint machines, among the collected data was the power required to drive the calenders. In this paper the calender load of twenty machines covers a range of speed from 1100 to 1345 f.p.m. and on calender stacks of a considerable diversity in the number and size of rolls.

To bring the results to a comparative basis the power load is shown as kilowatts required per inch of calender roll face at the indicated speeds. Since it is evident that the main factors influencing the power load are the speed and the weight of the driven rolls, to reduce them to the same basis, the comparative figure used is the product of the speed and the weight per inch of the driven rolls.

On Fig. 1 for each of the twenty paper machines, the kilowatt load per inch is plotted against the product of the speed (f.p.m.) and the weight (in thousand pounds) per inch of roll face. While one of the machines (13) required 0.410 kw. per inch and another (9) 0.530 kw. per inch with two others (14, 15) 0.256 and 0.285 kw. per inch, for all the others the load was between 0.320 and 0.390 kw. per inch in spite of the variation in speed and weight of the calender rolls (Table I).

The graph in Fig. 1 of Machine No. 18 on which the speed was increased from 745 to 1300 f.p.m., the weight of the calender rolls being the same, indicates that the load increased from 0.171 to 0.372 kw. per inch (Table II). For 74.5% increase in speed the load increased 117.5% or for each 1% increase in speed the load increased 1.58%.

TABLE I.—PRESS LOAD ON NEWSPRINT CALENDERS

Machine No.	Speed f.p.m.	Weight of All Rolls lb./in.	$S \times \frac{W}{F}$ / 1000	Power Kw/in.
1	1100	617	679	.370
2	1250	544	680	.350
3	1280	534	683	.332
4	1270	540	686	.344
5	1260	548	688	.371
6	1150	642	738	.358
7	1160	640	742	.365
8	1120	667	746	.354
9	1190	646	768	.530
10	1200	668	804	.377
11	1300	622	809	.320
12	1300	630	819	.350
13	1200	685	822	.410
14	1099	750	826	.256
15	1099	757	832	.285
16	1280	679	869	.340
17	1298	693	900	.390
18	1280	717	917	.360
19	1335	694	928	.380
20	1345	695	935	.370

TABLE II.—CALENDER LOAD VS. SPEED
Machine No. 18

Reading No.	Speed f.p.m.	Weight of All Rolls lb./in.	$S \times \frac{W}{F}$ / 1000	Power Kw/in.
a	745	717	535	.171
b	750	717	538	.184
c	760	717	545	.171
d	775	717	555	.184
e	830	717	594	.180
f	840	717	602	.189
g	860	717	626	.215
h	885	717	634	.206
i	905	717	648	.215
j	915	717	656	.219
k	945	717	678	.250
l	985	717	706	.228
m	1040	717	746	.307
n	1060	717	760	.297
o	1140	717	817	.316
p	1160	717	832	.320
q	1180	717	846	.316
r	1210	717	868	.346
s	1240	717	889	.342
t	1275	717	914	.351
u	1290	717	925	.364
v	1300	717	932	.373

Effect of the Draws on the Calender Load

It had been pointed out that the draws or sheet tension between the calenders and the driers on one hand and the reel on the other, had a definite effect on the calender load. As an evidence of this, data were taken on Machine No. 6 and its identical companion machine operating at the same speed. The readings were taken under four conditions:

I. Normal operation with sheet to reel
II. Normal operation but without sheet to reel
III. With slack draw to calenders and without sheet to reel
IV. With no stock on wire and consequently no paper in driers to calenders or to reel

From the figures in Table III some interesting deductions are possible.

TABLE III.—POWER LOAD ON DIFFERENT SECTIONS
Machines Nos. 6 and 6a

Condition	Machine	Driers	Calenders	Reel	Total
I	6	.795	.362	.062	1.219
	6a	.812	.338	.054	1.204
	Av.	.8035	.3500	.058	1.2115
II	6	.845	.383	(.0103)	1.2383
	6a	.838	.370	(.0106)	1.2086
	Av.	.8365	.3785	(.0105)	1.2235
III	6	.888	.300	(.0103)	1.1983
	6a	.910	.286	(.0106)	1.2066
	Av.	.899	.2930	(.0105)	1.2024
IV	6	.838	.1345	.0103	.9828
	6a	.845	.1372	.0106	.9928
	Av.	.8415	.13585	.0105	.9878

In Case I, under normal operation with tension of reel assisting the calenders and with a tension on the driers, the calender load is 0.350 kw. per inch.

In Case III, with no sheet on the reel to assist and with very slack draw to reel, presumably no tension, the calender load is 0.293 kw. per inch. Consequently, 0.350 — 0.293 = 0.057 kw. per inch would represent the load on the calenders due to the excess tension on the driers compared with the tension exerted by the reel on the calenders. In other words,

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

[1] Member TAPPI; Engineer, News Print Service Bureau, New York, N. Y.

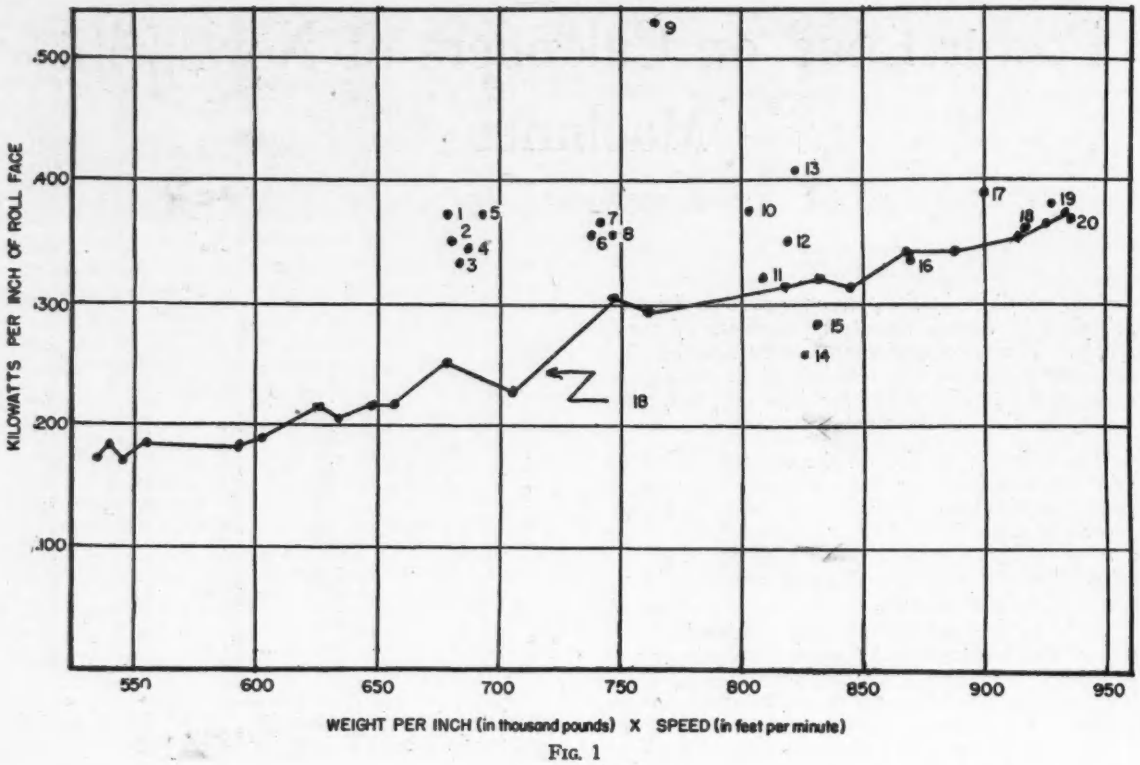

FIG. 1

0.057 kw. per inch represents the net tension load on the calenders.

Considering Case III in which the sheet is passing through the calenders without the help of the reel and with no tension on the driers, and Case IV where the calenders are running with no paper and overcoming friction only, the difference in the calender loads (0.293 — 0.13585 = 0.15715 kw. per inch) then represents the power load to press and smooth the sheet in its passage through the calenders.

From the foregoing relationships the following breakdown can be made.

Net tension load on the calender	0.057 kw. per inch =	16.3%
Friction load	0.13585 kw. per inch =	38.8%
Power required for pressing, smoothing the sheet	0.15715 kw. per inch =	44.9%
		100.0%

Delaware Valley Section Meets

A large number of the members of the Delaware Valley Section of TAPPI heard Dr. Andrew I. Peterson, director of Manufacturing Research, Victor Division of RCA speak on systematic quality control at the meeting held March 31.

Dr. Peterson stressed that the success of a management was judged by the difference it was able to maintain between cost of the raw material and price of the finished product. Inasmuch as the acceptability and demand for a particular article is dependent on quality, it is necessary to install some system of control which in addition to the benefits gained in marketing tends toward an uninterrupted manufacturing schedule with a reduction in waste and costs.

When the technologist designs a system, it is imperative that he gives ample consideration to the four M's, Men, Material, Machinery, and Measurement as they are the factors upon which the success of control depends.

Systematic or statistical control is not as complicated as it would first appear. It is the application of the laws of probability to a certain set of conditions. Dr. Peterson illustrated the basic fundamentals of this method and their application with the caution that its introduction must be made gradually to instill confidence in all concerned with it. With the system in operation, assignable causes for variations may be more readily determined and correction measures be taken before the process gets out of hand and rejects pile up. The statement was made that any process that can be measured is not an art. Is papermaking an art, a question for the paper industry.

Those who listened to this interesting talk included: A. L. Bixler, Richard Bingham, E. P. Boehnecker, Samuel M. Bratton, L. K. Burnett, A. R. Chapman, C. M. Connor, J. D. Davis, J. C. Dieffenderfer, John H. Dittmar, W. P. Dohne, Harrison J. Farra, Jacob Edge, J. F. Good, Gosta Hall, L. Hans, J. C. Harper, A. M. Hartley, Eugene G. Holland, C. M. Howell, Harry Hulmes, George J. Lane, N. H. Langhrey, J. Macadam, Mrs. Mary C. Mathews, E. P. McGinn, Louise McGrath, J. P. Paciello, Joseph E. Plumstead, Edward N. Poor, William G. Putney, C. H. Rice, L. E. Rossiter, John Roslund, E. P. Ryan, C. J. Ryder, J. Carl Schmidt, Wm. Shoemaker, Chas. A. Shubert, G. M. Suydam, Richard N. Temple, Roy Underdown, G. C. Walton, A. E. Waugh, Ray Wilcox, and Edmund A. Yerger.

How to Get Better Process Water

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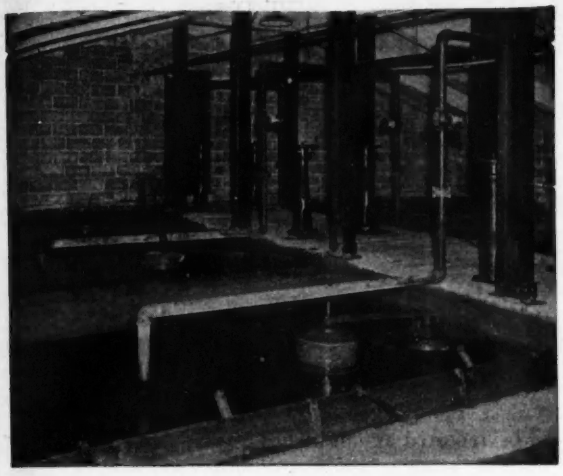

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HAS YOUR NEW PERSONNEL BEEN EDUCATED?

16 WAYS TO ADD LIFE TO YOUR FELTS

In these days of rapid change and expansion in mill personnel, too often through lack of knowledge, paper mill felts are neglected or abused.

Have you educated your new employees in the care of felts? Have they been taught to keep a close check on felt rolls for proper balance . . . have you instructed them in the importance of correct water temperature . . . do they know the latest method of cleaning, drying and storing? These are but several of the things that will prolong the life of a felt . . . effect an annual saving, not only in felt cost, but in down-time.

To help the new employee . . . to refresh the memory of the old employee, Orr Felt & Blanket Co. has published a booklet on felt saving hints. Write today for your copy.

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New York Paper and Pulp Market Review

New Wood Pulp Allocation Order Will Operate To Reduce Civilian Supply of Paper—Kraft Lines Most Affected—More Pulpwood Now Being Harvested — More Waste Paper Is Urgently Needed.

Office of the PAPER TRADE JOURNAL.
Wednesday, April 12, 1944.

Heavy demand for most lines of paper and paper board, lack of manpower and difficulty in making deliveries to customers, are some of the business troubles reflected in reports from most of many manufacturers' representatives, jobbers, and general paper merchants this week. Concern is also expressed from coarse paper merchants in relation to the future trade supply of kraft and other wrapping and bag papers. A recent WPB release, emphasizing the increased requirements of kraft products for war and allied uses, stated little kraft wrapping paper and container board items would be available for civilian use this year. The pulpwood supply is increasing, however, and the outlook at the moment is very likely to show some improvement in the future. Government estimates are commonly over rather than under actual requirements.

The index of general business activity for the week ended April 1, rose to 144.2, from 143.2 for the previous week, compared with 138.3 for the corresponding week for 1943. The index of paper board production was 140.0, compared with 145.6 for the previous week, and with 150.9 for the corresponding week for 1943.

The index of paper production for the week ended April 1 was estimated at 88.0%, compared with 88.6% for 1943, with 102.2% for 1942, with 83.0% for 1941, and with 68.0% for the corresponding week for 1940.

Paper board production for the week ended April 1 was 93.0%, compared with 95.0% for 1943, with 100.0% for 1942, with 83.0% for 1941, and with 68.0% for the corresponding week for 1940.

Newsprint orders for the second quarter, the WPB announces, are expected to total 822,000 tons, leaving about 13,000 tons for contingencies and appeals, but no addition to inventories will be possible. Additional government orders, the release states, for newsprint and "news machine" pulp approved by the WPB for the first quarter, reduced the balance by about 20,000 tons, leaving a net carry over of 15,000 tons available from Canadian sources.

Pulpwood

Late reports from some of the important pulpwood producing areas, and from Canada, indicate a steady increase in wood output. Italian war prisoners are said to be good workers but reports on the employment of German war prisoners in the woods are not so good. All prisoners are paid relative good wages.

Wood Pulp

Allocation of wood pulp for the second quarter is tightened by WPB General Preference Order M-93, issued April 4. All types of container board and some 60 types of paper and paper board are included. All consumers of wood pulp have been directed on Form WPB-2973, to produce specific tonnages of the preferred types of paper and paper board. Wood pulp shipments are, accordingly, given a preferred status by WPB Directive 1 to M-93. If a pulp producer is unable to meet all tonnage as directed, he must reduce deliveries to his own mills.

Rags

Mill buying of new cotton cuttings continues active. All grades are in good, steady demand. Prices are strong, with full ceilings being paid by mills.

Demand for old cotton rags is quite heavy at this date. Roofing mills are taking all supplies available of their wanted grades. The General Salvage Branch of the WPB has launched a campaign for an increased collection of rags throughout the nation. The manpower, situation, however, continues to hamper collections in the waste materials markets.

Old Rope and Bagging

Mill demand for old No. 1 Manila rope continues to be reported as unsatisfied. Manila fiber is needed in larger quantity for war uses. No important change in the old rope market has been reported this week.

Scrap bagging continues slow, with few buyers interested in taking on supplies. Prices are soft and continue nominal.

Old Waste Paper

More waste paper continues to be urgently needed by board mills. The U. S. Victory Waste Paper Campaign has not resulted in the quota estimated to meet requirements. The WPB reports collections for the first 1944 quarter are running behind estimates. Inventories totaled 248,000 tons at the end of December 1943, rose to 252,000 tons at the end of February, after declining to below 248,000 tons in January. To be adequate, the collection goal has been set at 666,000 tons a month.

Twine

Demand for twine is active. All obtainable grades are in a strong market position, despite the inferiority in the quality of the supply. These substitutes for the standard grades formerly used, are not giving even fair satisfaction. Prices are firm.

Buys Corning Paper Supply Co.

CORNING, N. Y., April 10, 1944—The Corning Paper Supply Company, operated by the late William Campbell, has been purchased by Clement L. Murphy, 224 Cedar street, who will operate it under the same name. Mr. Murphy said that the business will be continued as usual at the 130 East Market street premises with the present personnel. Mrs. Murphy will be temporarily in charge of the company, he said.

Mr. Murphy, chief clerk of the Erie Railroad Freight office in Corning, has been active in community affairs. He is a former alderman for the Fifth Ward. He is a former Grand Knight of the Corning Council Knights of Columbus and past commander of the John P. Eaton American Legion Post.

bombs

and printers' ink

Both of them are fighting the Axis and winning the war. When the fight is won the bombs will have served their purpose but printers' ink will loom large in the post-war era.

We are going to have new and better aniline and rotogravure presses for post-war industrial printing.

Just now we are building machines for propelling bullets into the heart of the Axis. Tomorrow we'll build printing presses for you and your customers' needs.

In the meantime, send us some idea of your post-war plans and requirements that you have in mind.

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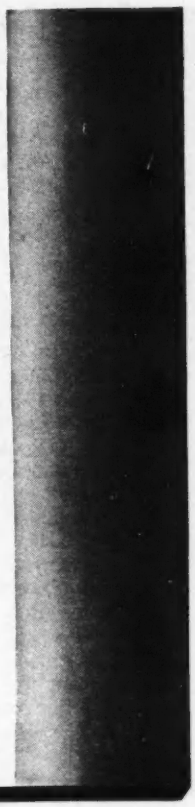

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MAGNUS SLIME REMOVER
is not only faster but it does not require laborious hand labor. It reaches into all parts of the system, removing slime which, under ordinary cleaning methods, often comes through in slugs during the run. Easy to use, safe and positive in action, Magnus Slime Remover can readily cut your slime removal costs in half. And since it kills the bacteria and fungus responsible for slime, it will materially slow up the formation of new slime growths.

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Representatives in Principal Cities

Magnus PAPER MILL CLEANERS

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, April 12, 1944.

BLANC FIXE—Prices on blanc fixe continue to conform to prevailing quotations. Demand is reported fair. The pulp is quoted at $40 per ton, in barrels, at works. The powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Demand is reported active with the supply situation satisfactory. Quotations are unchanged. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound: less than 2,000 pounds, 24¾ cents per pound f.o.b shipping point. Imported Casein, 11¼ cents per pound, f.o.b. source.

CAUSTIC SODA—Demand heavy. Shipping situation a little improved. Prices unchanged. Solid and flake scarce. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CHINA CLAY—Current demand is reported moderate on many grades of china clay. Quotations unchanged. Domestic filler clay is quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand active, with all allocation requirements met. Supply situation favorable. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—The rosin market reports lower prices on some grades this week. "G" gum rosin is currently quoted at $4.72 per 100 pounds, in barrels, at Savannah. "FF" rosin is currently quoted at $4.70 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $4.99 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake continue to be reported unchanged. Demand is moderate for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk. Chrome cake is currently quoted at $16 per ton. All quoted prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand for soda ash is reported to have tightened the supply situation. Prices continue to conform to prevailing levels. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Cash corn available for trade consumption continues limited and market is still tight on corn and corn products. Prices unchanged on starch. Pearl is quoted at $3.72 per 100 pounds. Powdered starch is quoted at $3.83 per 100 pounds. All prices in bags, car lots f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand moderate. Supply situation is reported satisfactory at this date. Prices of the commercial grades are currently quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $2.35 per 100 pounds. All prices in bags, car lots, f.o.b. works.

SULPHUR—Current consumption of sulphur continues heavy. Market situation unchanged. The quotation on annual contracts continues at $16 per long ton, f.o.b. mines. The current price on contracts at Gulf Ports is $17.50 per long ton.

TALC—Demand reported moderate. Domestic grades are currently quoted at from $16 to $21 per ton, at works.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	*$58.00	@	—
Sheets	64.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*48.00	"	—
Sgl. Mia. Li. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65@$13.3	
No. 2 Glossy Coated	12.40 "	14.0
No. 3 Glossy Coated	11.60 "	13.2
No. 4 Glossy Coated	11.15 "	12.7
No. 1 Antique (water marked)	10.25 "	11.7
No. 2 Offset	9.60 "	11.0
A Grade E. F.	9.35 "	10.7
A Grade S. & S. C.	9.60 "	11.0
B Grade E. F.	8.85 "	10.2
B Grade S. & S. C.	9.10 "	10.5
C Grade E. F.	8.55 "	9.7
C Grade S. & S. C.	8.80 "	10.0
D Grade E. F.	8.25 "	9.5
D Grade S. & S. C.	8.50 "	9.7

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight, Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.0
Unbl. Mitscherlich	72.00 @ 82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	84.0
S. Semi-Bleached Sulphate	75.0
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50% 80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

☆ Benjamin Franklin's curiosity about lightning and his development of a coal stove were typical of the Yankee spirit of ingenuity which has made America great. Call it research if you like. Lindsay desires by sincere effort to contribute materially to the improvement of Fourdrinier wire cloth and of the paper that is formed on it.

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Serving the Paper Industry Since 1903
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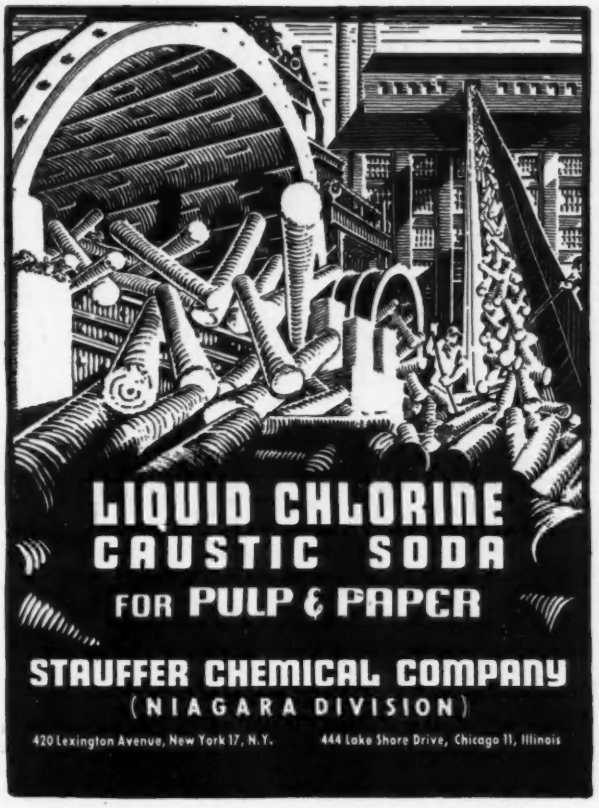

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MILLS

Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

Old Rags

White, No. 1—			
Repacked	*1.80	"	—
Miscellaneous	*1.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	●	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	●	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares, heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	17½	"	—
Paper Makers	17	"	—
Tube Rope	19	"	—
Wall Paper	20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	18	"	—
Mex. Sisal	16	"	—
Manila		"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1 Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
No. 1 Clean bright—			
Sisal Strings			.04
No. 2 Clean bright—			
Sisal Strings			.03
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
[illegible]	4.00	"	4.20
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.25	●	—
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	2.00	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cr[illegible] Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.50	"	—
Wool Tares—			
Foreign	(nominal)		

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.25	●	—
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	2.00	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cr[illegible] Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.50	"	—
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	3.75	"	4.00
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¼	"	.04¾
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.05¾
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06½
New Black Silesias	.03	"	.03
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03¾
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	4.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
*Old Manila Rope	5.75	"	—

*OPA Maximum Prices

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)
Misc.	2.15 " —
No. 1 White Ledger	2.17½ " —
No. 2 Ledger, colored	1.87½ " —
No. 1 Heavy Books & Magazines	1.67½ " —
Overissue Magazines	1.67½ " —
New Manila Envelope Cuttings	2.65 " —
No. 1 Assorted Old Kraft	1.75 " —
No. 1 Mixed Paper	.70 " —
Box Board Cuttings	.72½ " —
Kraft Corrugated Cuttings	2.25 " —
Old Corrugated Containers	1.15 " —
Overissue News	.85 " —
No. 1 News	1.00 " —

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—